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A Monthly Record of Medicine, Surgery and the Collateral Sciences

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Present Progress in the Recognition and Application of Physical Therapy*

VICTOR COX PEDERSEN, A.M., M.D., F.A.C.S.,

New York, N. Y.

Caution and careful observation have marked the work of your Committee during the official year just closed. The plan of work carried on from September, 1924, to September, 1925, has been repeated, so that, as far as possible, contact has been maintained with medical schools, hospitals, medical societies and medical journals. As heretofore, much aid has been given by the Committee on Medical Education and Hospitals, the Council on Physical Therapy and the Officers of the American Medical Association. Appreciation and gratitude for this all-important cooperation are hereby now expressed with sincerity.

It is a pleasure to report that instead of the definite tendency of a year ago, there is now a fixed constructive policy in favor of conservative recognition and a judicious application of Physical Therapy as a subject for didactic and practical teaching in medical schools, extensive and departmental organization in hospitals, more sane and safe consideration at medical meetings and a fuller and finer presentation in medical journalism through studies, papers, contributions and abstracts.

It is not necessary to repeat but rather refer the reader to the report of last year in the matter of non-medicinal treatment familiar to the medical profession for an indefinite time and summed up in four classes of therapy:—support, heat, actinic and gymnastic action.

1. Medical Schools

Institutions of learning must essentially develop Physical Therapy in one of four ways either basically or developmentally in passing from one method to another

method. The four details are: (a) as a special Department in Physical Therapy as such; (b) as special and simple or elaborate courses; (c) a Subdepartment of General Therapeutics or other subjects; and (d) *sub judice*. The existing classification of our various medical schools conforms to the report of last year. No great departure has occurred from the status in the schools and distribution throughout the country of the work as shown at that time.

The list of recognized schools would not be materially changed in one year but the tendency to greater recognition of Physical Therapy is exemplified by lectures before societies as hereinafter stated.

Practical courses are being developed by the extension of didactic work to work in hospitals in the clinic and outpatient departments under the direct or indirect jurisdiction of the medical schools. The best single example of this work is the clinical work under development by the College of Physicians and Surgeons, Columbia University in the City of New York in a few hospitals, as a part of its "Extension Courses." The scope of this work as time goes on is a deliberate and great expansion of the didactic lectures to a practical application. In this particular medical school the undergraduate and the postgraduate courses are didactic. Probably in time both all will receive demonstrations in practical work, also, either at the College or in the clinics of such "Extension Courses."

The very large expansion of Physical Therapy in a short period of time again brings up the need of floor space in the schools, hospitals and dispensaries for proper installation of apparatus and application of methods. One may advisedly refer again to the chief, if not the sole basis, of this sudden and definite recognition of

* Report of the Standing Committee on Information and Publicity of the American Electrotherapeutic Association. From September, 1926, to September, 1926. Presented in Epitome before the Annual Meeting, September 9-12, incl., 1926, in Atlantic City.

Physical Therapy throughout the United States. The large number of our medical officers in Europe during the war came into actual contact and had real observation of every detail of Physical Therapy beginning with special institutions adapted and devoted to Physical Therapy and including hospitals with well equipped and established departments.

Our medical schools will probably follow in one degree or another the example of the University of Cambridge which now has courses leading to a diploma in Medical Radiology and Electrology.

One readily realizes the progress in being and in accomplishment when work in our medical schools today, although far from perfect or adequate, is compared with the standard of even ten years ago when the courses usually in the department of General Therapeutics covered only massage, gymnastics, mechanotherapy and hydrotherapy at all extensively. Added to these electrotherapy and phototherapy received inadequate and almost imperfect mention. All such work was made subordinate to other departments such as general surgery, general medicine, neurology and general therapy.

A sidelight on the necessity for these courses—undergraduate and postgraduate—is exemplified by the request of a certain manufacturer to have one of our senior members give lectures and demonstrations before his weekly salesmen's conference so that the salesmen would be properly informed for instructing physicians purchasing apparatus. The Executive Committee immediately requested our colleague not to give these lectures because indirectly the whole situation constituted instruction of physicians by mere commercialists. The Committee has been informed that one manufacturer has voluntarily and finally discontinued lecture courses in their factory to physicians. As this decision is the outcome in part of the work of this committee during the past two years and in part of pressure from the American Medical Association and the American Electrotherapeutic Association, there must arise much satisfaction in it.

2. Hospitals

In the 1925 report of this Committee, twenty-four hospitals were listed as having reported the existence of distinct Departments of Physical Therapy to the American Medical Association. The American Hospital Association, Inc., in its Membership Lists, 1926, shows for each institution the number of beds, clinical classification, ownership, outpatient department, training school, internes, dieticians, social service, clinical laboratories, X-ray and physical therapy. Naturally, these details bear on the rating of the hospital. There are 301 grade A hospitals reporting Physical Therapy in this document at the 27th Annual Convention in September, 1926—namely, twelve and three quarter times the number of hospitals a year ago. Just what this development means cannot be stated at the present writing. It can hardly mean in most instances a large amount of floor space devoted in the hospital or outpatient department to nothing but physical therapy. It probably means a normal and tremendous impulse for at least a basic equipment and establishment and real treatment of the cases accordingly.

One letter from the Executive Secretary of the American Hospital Association states the desirability of a questionnaire to be sent to each member hospital. The queries should indicate what should be done in order to establish uniformity of plan, scope and equipment and the answers will show what has in fact been done. An essential feature of the Committee on Information and Publicity of this present year will be the follow-up of

this questionnaire as a means of assisting and co-operating with the American Hospital Association.

In our report of last year it was noted that many hospitals gave practical courses.

The following questionnaire has been prepared by Dr. Norman E. Titus, a member of the Committee and submitted to the American Hospital Association through its Executive Secretary.

Questionnaire for Departments or Physiotherapy

1. Is the hospital a specializing hospital? Or doing general medicine and surgery?
2. What kind of current is supplied?
3. How much floor space?
4. Is floor tiled or is it covered with some material that eases the condition for technicians' feet?
5. Is there more than ample ventilation?
6. Is the cubical system used?
7. If cubical system is used, do you use curtains or partitions?
8. How many patients can be treated at one time?
9. How many reclining? How many sitting?

Equipment—Answer in Figures

10. a—How many applicators for radiant heat?
- b—How many air-cooled mercury arc lamps? Carbon arc lamps?
- c—How many water-cooled mercury arc lamps?
- d—How many infrared applicators?
- e—How many high frequency machines—stationary? Portable?
- f—How many static machines?
- g—How many low voltage wave applicators?
- h—How many whirlpool baths?
- i—How many Scotch douches?
- j—How many continuous baths?
- k—How many electric light cabinets?
- l—How many other thermotherapy cabinets?
- m—How many muscle testing sets?

Personnel

11. a—How many doctors directly connected with the department?
- b—Do any or all of these make rounds with the other services of the hospital?
- c—Has department a chief technician?
- d—Total number of technicians, including "c"?
- e—Are these technicians graduate nurses?
- f—Are these technicians trained in the department?
- g—Are these technicians former government technicians?
- h—Do all technicians handle all the modalities or are they restricted to the use of one?
- i—What is the maximum and minimum pay of technicians?
- j—How much vacation per annum do they receive?
- k—How many treatments does each technician average per day?
12. a—Do all departments of the hospital refer patients?
- b—Are diagnosis and complete histories sent with each patient?
- c—Is the diagnosis made in the department?
- d—Are patients admitted directly to the department?
- e—Are patients discharged from the hospital from the department?
- f—Are patients discharged back to the department from whence they came?
- g—Are patients treated in the wards?

- h—What are the majority of the patients—medical? Surgical? Children?
- i—What is the charge to clinic patients? Ward patients? Private patients?
- j—Are patients satisfied with their results?

Records

- 13. a—Have you a separate system of physiotherapy records?
- b—Does it work in with the hospital system?
- c—Does the system keep track of the following points?
 - 1. Date of admission.
 - 2. Date of each treatment.
 - 3. Time of each treatment.
 - 4. By whom ordered.
 - 5. By whom given.
 - 6. Consultations with director.
 - 7. Progress notes.
- d—Has the department a diagnosis file?

In our report of last year it was noted that many hospitals give practical courses.

- 14. a—Do you give courses of instruction to physicians and to nurses and to laymen?
- b—Detail the plan and scope of courses to physicians.
- c—Detail the plan and scope of courses to nurses.
- d—Are nurses given a certificate or diploma after completing the courses?
- e—Are nurses taught not to practice Physical Therapy in private except under the prescription and direction of physicians?
- f—Does the diploma to nurses forbid or qualify their right to practice Physical Therapy except under physicians?
- g—If you teach laymen what is your plan of selecting and accepting them for courses?
- h—What are the plan and scope of the courses for laymen so accepted?
- i—What are the nature and qualification of the diploma given laymen at the end of the courses?

One manufacturing interest a year ago began a campaign among hospitals to furnish blueprints and other information as to floor plans and equipment. The commercial policy behind this procedure is so obvious that the Chairman of the Committee immediately presented the plea that such data should proceed either from this Committee in behalf of the American Electrotherapeutic Association or from the Council of Physical Therapy of the American Medical Association, namely from physicians rather than laymen in a problem so purely professional. With great satisfaction the Committee is able to report that this particular company is no longer sending out said reprints and information. As far as the Committee is aware no other manufacturer is engaged in this rather objectionable work.

Thus the Committee is able to state this solution of this problem as another step forward because professional authorities are now the sources of the service required.

In our report of last year it was noted that many hospitals give practical courses for nurses and practitioners and the report uttered two cautions. The first was that only recognized practitioners of medicine in good standing be admitted to the courses. The position is almost axiomatic. Nevertheless, in the meetings of our own organization caution must be exercised constantly to exclude irregulars, hence the same policy in hospitals is by no means misplaced.

The other caution is that in training nurses they should be inspired to see that in no circumstances should they undertake Physical Therapy in private except under the guidance of a physician. There is already a definite tendency for commercially inclined technicians and nurses to open establishments of their own and really to impose on the public in an effort to make diagnoses, to apply electrodes and attach wires.

At this time no one may foresee whether or not hospitals will, in general, qualify their diplomas for nurses with a stipulation that such conduct by their graduate nurses is forbidden.

The questionnaire already alluded to has emphasized these points of such courses so that the groundwork of proper courses for licensed physicians and proper training for nurses will also be laid.

One problem before the Committee of last year was to have its report and letter of explanation so attractively prepared and mailed as first class matter that officials of both medical schools and hospitals would take notice of the documents. Each letter, therefore, was signed in pen and ink by the Chairman of the Committee personally.

The printing of the extensive report and the rather long letter was a large item and the first class postage added materially to the expense. The results, however, justified the judgment by the Committee. A number of Deans of medical schools acknowledged and appreciated the service and the President of the American Hospital Association, after admitting that he had never heard of the American Electrotherapeutic Association, before, acknowledged the value of the Committee report and requested the favor of two papers before the Annual Meeting of his Association in Atlantic City during the week next following our own meeting.

Inasmuch as all the Grade A hospitals of the United States and Canada are members of the American Hospital Association, your Chairman feels that the Committee on Information and Publicity and the American Electrotherapeutic Association should realize that all effort and all expense have been abundantly repaid through these contacts alone, although of course, the importance of all the other contacts cannot be possibly be disregarded.

As President and with the indorsement of the Board of Trustees and after freewill consent by each writer, the Chairman requested Dr. Norman E. Titus to present a paper on the general nature and importance of Physical Therapy.

He covered its general considerations, its application by all staffs of hospitals, nature of modalities and precautions in their application and the general effects (such as actinic, chemical, mechanical, biochemical, biophysical) and finally hydrotherapy. For the administration of hospitals Physical Therapy is an added means of treatment locally. It is applied on the physiological basis of disease and not according to the symptoms of the disease. The latter proposition is a rather serious mistake.

Dr. A. Bern Hirsh was requested to prepare a paper on departmental and nursing development of Physical Therapy. His contribution covered the selection and supervision of personnel, the details of ward and out-patient equipment, preparation and training of assistants and the duties of the head of the department toward other departments and patients. From the administrative standpoint the essential value of Physical Therapy must be realized. The staff should be carefully selected and adequately paid and its duties to be hospital at large clearly defined.

These papers have appeared in the American Hospital for January and February, 1927, and should be carefully read by our members with the satisfaction that the Association is at last coming into its own terms of proper general recognition.

Doubtless the Committee on Medical Education and Hospitals will be of great service to the cause of Physical Therapy in all forms of hospitals. Again we see the advantage of coordination, cooperation and organization.

It must be realized that Extension Courses typified in New York City by the plan evolved at Columbia University cover the proposition that any student may follow any direction of study and investigation he chooses. Therefore at the Reconstruction Hospital in New York City such Extension Courses in Physical Therapy have been laid down for postgraduate medical students desirous of training in Physical Therapy. Only indirectly are they under the development of the University and have nothing to do with the didactic undergraduate and postgraduate courses at the medical school itself.

3. Medical Societies

The American Medical Association has a Council on Physical Therapy but no Section. The latter is a development for the future and should be an accomplished fact ere long in the ordinary common course of progress. In contrast with this is the fact that the Royal Society of Medicine of London and the British Medical Association both have Sections or the equivalent thereof. The International Congress of Electrology and Radiology is also a European development. As your Chairman has so often said in this and similar connections, Physical Therapy in this country needs a centralized organization which will combine in some form all the best elements in terms of the various societies which are now working not only independently but also at cross purposes by duplicating the effort and by multiplying the overhead.

One of the most important functions for our individual members is a real effort to prepare and present wise and conservative papers before the Sections of the American Medical Association under the following plan which appears to be fully acceptable to the American Medical Association. The following quotation is from the Presidential address duly delivered before our Association in Atlantic City:

"1. If a paper has a definite bearing on one of the departments of medicine, then that paper should be read before the section devoted to such department of medicine. Example: Physical Therapy in the Treatment of Fractures, should be read before the Section on Surgery."

"2. If a paper deals with the general subject of Physical Therapy through a special modality and as definitely applied to therapy in general, then such paper should be read before the Section on Pharmacology and Therapy. Example: Physical Therapy in Comparison with Other Methods.

"3. If the paper is concerned with the physics of a definite method of Physical Therapy, then it should be read before the Section on Miscellaneous Topics. It would seem to me that this particular Section might be the outlet for many of the formal reports of the Council on Physical Therapy."

A coordinated persistent effort along these lines will certainly be productive of progress. Another element of society progress will and should be imitated in various parts of the country. A few years ago the Medical Society of the County of Kings in this state instituted post-graduate conferences or lectures in all branches of medicine delivered by men of definite standing. Their success has been the model for similar work. The New

York Academy of Medicine will open a similar course of lectures this fall through its Committee on Medical Education and the Medical Society of the County of New York now coordinates fully by having its First Vice-President *Ex-Oficio* a member of the said Committee of the Academy. At last, therefore, physicians are beginning to collaborate in the organization of all this class of work, thus real, steady and adequate progress will be the result. It seems probable that the Medical Society of the County of New York will recognize Physical Therapy in terms of a Select or Standing Committee. It is hoped that in all these conferences and lectures in the future Physical Therapy in all its aspects and its problems will be recognized.

A very bright sidelight in this matter has been cast in Philadelphia. There the County Society in the Spring of 1926 organized a series of Seminars on Physical Therapy designed for practitioners. It covered the following subjects: Thermotherapy, Heliotherapy, Radiation in Skin Diseases and Superficial Malignancy, Massage, Corrective Exercises and Diathermy. The unexpected success of these Seminars has lead to their extension in Philadelphia to all other branches of medicine, and thus the pioneer work begun by the Medical Society of the County of Kings is gradually infiltrating the country. It is hoped that in the aid of such problems as biochemistry and biophysics, the Council on Physical Therapy of the American Medical Association will ultimately be of great service in initiating, guiding and developing adequate studies so that a better understanding will be the outcome.

Members who live in large medical centers should endeavor to start exactly similar courses through the agency of medical schools and hospitals to which they are attached.

Only in this manner will the movement for the proper recognition and development of Physical Therapy continue to move forward.

Very much the expected thing will be within the near future, a report or other action by the Committee on Medical Education and Hospitals of the American Medical Association laying down such courses of study and instruction for medical schools and hospitals and extensions courses of universities. As soon as such a report is forthcoming, the members of the American Electrotherapeutic Association should be deeply interested and aid in promoting realization of the purpose aimed at in the report.

4. Medical Journalism

The latest and one of the longest steps forward has been a direct request by the Journal of the American Medical Association for articles on Physical Therapy not only as abstracts but also as original articles. Our Departments of Physiology are instituting and prosecuting learned studies in the biochemistry and biophysics of physical methods. The underlying influence upon the cellular construction of the animal body is the real basis of the diagnosis, treatment and prognosis in Physical Therapy. A very learned though brief, contribution as one example, has recently appeared from the Department of Pathology of Columbia University entitled "Experimental Studies on the Biological Effects of Radium upon Tissues Growing in Vitro". This article will very fully repay careful study by all our members. In contrast with the previous listing and abstracting of articles, we now see requests for contributions and issues devoted to Physical Therapy and studies of the foregoing quality and value. With the modern method of editorial management one need not greatly fear laxity in the publication of papers nor in the multiplication of

journals more or less devoted to Physical Therapy. Again the recommendation for combined effort the thought presents itself that our members should do their utmost to publish papers of high quality all over the United States.¹

There seems to be less tendency at the moment toward an evil which was mentioned in our last report. This is the piracy of contributions by the so-called handbooks and pamphlets of manufacturers through which papers intended for physicians duly licensed and in good standing are passed over the counter to any inquirer whether a member of the medical profession or a fly-by-night cult.

Owing certainly in part to the services rendered by the Committee on Information and Publicity, at least one of the manufacturers will discontinue the printing of papers by our members and print instead abstracts only in their booklet of information.

It would not be in any circumstance unreasonable to expect the Council on Physical Therapy of the American Electrotherapeutic Association to request and issue or otherwise sponsor a series of instructive and educational articles on Physical Therapy to appear from time to time in the Journal of the American Medical Association. Correspondence by the Chairman of this Committee with the Council on Physical Therapy indicates such to be their purpose and to be the outgrowth of numerous inquiries from various sources and therefore to be the obvious necessity in the circumstance of the development of Physical Therapy.

What has been said is information as comprises in the title of this committee. Brief mention should cover Publicity as such, also in the title. In addition to contacts with medical schools, hospitals, medical societies and journals, the contact established with the American Hospital Association may be emphasized again because it opens the way possibly, if not probably, for many years of cooperative and developmental service. Through its historic standing the American Electrotherapeutic Association is preeminently entitled to preference and privilege in this service.

The recommendation of your committee of last year for the preparation of papers available to hospitals has been covered adequately by the foregoing contributions by Drs. Titus and Hirsh. It is worth while to repeat the wisdom of producing papers so that information and guidance will come from within the profession and pass to the profession as to Physical Therapy.

The recommendation for cooperation with the American Medical Association and the American College of Surgeons has worked out fairly well. It could hardly be carried to a final conclusion because the development of Physical Therapy through the country is still rudimentary as exemplified by recommendations from the Council on Physical Therapy which appeared only a short time ago in the Journal of the American Medical Association stipulating suggestions as to apparatus.

Countrywide publicity of this kind proceeding from the American Medical Association is perhaps the sole safeguard against error because of the centralized knowledge, authority and dissemination by an organization of more than 100,000 first class physicians. The recommendation as to apparatus already so adequate will soon be followed by other recommendations.

Cooperation should be granted by all our officers and

members wherever asked for by outside bodies as exemplified in the ready response to the appeal from the American Hospital Association. Similarly coordination should be developed wherever the cause and work of Physical Therapy requires stabilizing.

Recommendations

The following desiderata should be brought to fruition by our members as individuals and by the Committee on Information and Publicity of the new administration as a group with definite duties:

1. Cooperation with hospitals in the founding of proper courses for nurses and practitioners.

2. Promotion and development of a Section on Physical Therapy in the American Medical Association by presenting papers before other Sections to prove the importance and stability of Physical Therapy.

3. Publication of real contributions to the science of Physical Therapy throughout the United States.

4. The questionnaire embodied in this report will surely be sent out by the Executive Secretary of the American Hospital Association either in its present form or in form modified to suit their needs. Aid will be asked and one of the great functions of the new Committee on Information and Publicity will be to maintain this contact closely and give that aid.

5. Another important duty of the new Committee is to maintain and strengthen all the contacts already made, as shown in this report, and as far as possible extend the service thus begun.

It is hoped that at the end of the present year the report of the new Committee on Information and Publicity will show still greater progress.

J. WILLARD TRAVELL, NORMAN E. TITUS,
LYMAN W. CROSSMAN, GEORGE A. WYETH,
CHARLES R. BROOKE, MADGE C. H. MCGUINNESS,
VICTOR C. PEDERSEN.

45 West 9th St.

The Prevention of Blindness

The tremendous strides which have been made toward elimination of the principal causes of blindness in the eighteen years since the origin of the movement for the conservation of vision are revealed in the Annual Report of the National Committee for the Prevention of Blindness.

The report, entitled "A Year in Review," shows that the percentage of children in the schools for the blind who lost their sight because of ophthalmia neonatorum—for centuries the principal cause of blindness—has been reduced more than 51 per cent during the life of the Committee. It announces the establishment of the country's first preschool eye clinics for the examination of the eyes of children too young to read, and describes how in these clinics it has become possible to test the sight of children as young as two to six years.

The report shows that in 1913 there were throughout the United States only two sight-saving classes for the education of children with seriously defective vision; that in 1926 there were 265 such classes; but that this is only 5 per cent of the number of such classes needed to provide education for children with serious eye defects without further endangering their sight. More than 4700 additional sight-saving classes are needed, according to the Committee for the Prevention of Blindness.

The Certified Seaman

Arrangements have been perfected in all ports of the United States whereby American seamen are receiving through physical examinations prior to shipping on vessels of the American Merchant Marine, and medical departments are now installed in the different Sea Service Bureaus over the country.

In ports where the Shipping Board does not have its own physicians, physical examinations are given by regular medical officers of the United States Public Health Service, acting in conjunction with local officials of the Shipping Board.

Not only are the examinations of value to the vessel personnel, but they have also proved of great economic benefit to the American Merchant Marine by assuring at all times a supply of seamen who are known to be in the best physical condition.

¹ A very important field of development in medical journals is exemplified by *The American Journal of Surgery*. Its title announces that it is Devoted to General and Industrial Surgery and Physical Therapy. Dr. Norman E. Titus is Associate Editor for Physical Therapy. Such steps in advance as an old, established and growing journal should be followed and certainly will be followed by other journals. This fact is important because it takes Physical Therapy into the general field of medical literature which will correct the false impression that it is limited and specialized.

Endocarditis and Meningitis (Pneumococcic)

Report of Cases and Review of Literature

HYMAN I. GOLDSTEIN, M.D.

Camden, New Jersey

ADJUNCT ATTENDING PHYSICIAN AND CHIEF OF THE MEDICAL DIAGNOSTIC CLINIC, MOUNT SINAI HOSPITAL, PHILADELPHIA; ASSISTANT VISITING PHYSICIAN, PHILADELPHIA GENERAL HOSPITAL; ASSISTANT VISITING PHYSICIAN AND CHIEF OF MEDICAL CLINIC, NORTHWESTERN GENERAL HOSPITAL, PHILA.,

and

HENRY ZUCKERMAN GOLDSTEIN, M.D.

RESIDENT PHYSICIAN, MOUNT SINAI HOSPITAL,

New York City

Pneumococcus endocarditis has been quite thoroughly discussed by Heschl, Netter, Pye-Smith, Wells, Preble, Locke, Osler, Funk, Andrew, Harbitz, Thomas and O'Hara, Walter W. Palmer, Springthorpe, Rosenow, Hoff, Chauffard, and Weichselbaum.

The occurrence in our own service (L. N. Boston) at the Philadelphia General Hospital, of a number of such cases, and also having the privilege of reporting several cases from other services lead me to publish this paper.

One of the cases in the service of Dr. D. Riesman had pneumococcus meningitis (group IV) and acute vegetative endocarditis of the tricuspid valve. Thomas and O'Hara (1920) after a careful search of the literature were able to find only 18 cases (including their own case) of pneumococcus endocarditis limited to the tricuspid valve. Lenoble and Lahellec (1923) report a fatal case in a man 78 years of age. The edges of the anterior and posterior leaflets of the tricuspid valve were united by a vegetation of the size of a pea. The left heart was normal except for slight atheroma. The right heart was filled with clots. (*Bull. et mem. Soc. med. de hop. de Par.*, 47: 1256-1259, July 27, 1923). Lutembacher reported a case in a man 64 years old. Blood culture showed the pneumococcus. At autopsy a purulent area was found at the right base. The internal leaflet of the tricuspid valve was covered with recent fibrino-leucocytic vegetations which contained many pneumococci. There was no cardiac lesion and the shape of the heart was scarcely changed. (*Paris med.* 41: 85-86, July 23, 1921).

Case XVI of my series showed a large vegetation on tricuspid valve.

Menetrier in a study of his cases taken from 400 autopsies (after pneumonia) found 22 cases of vegetative pneumococcic endocarditis, in which the pneumococcus was found. Of these, 11 were on the mitral and 9 on the aortic valve, and 2 on the tricuspid. There were 7 cases of verrucous endocarditis, (in which the organism was not found), and 18 cases of fibrous pneumococcic pericarditis. Four cases of cardiac thrombosis, two of the left and two of the right heart, were found. (*Bull. et mem. Soc. med. de hop. de Par.*, 48: 679-687, July 4, 1919).

Springthorpe reports a case of pneumococcus endocarditis of the pulmonary valve in a laborer, aged 50, who was treated at the Melbourne Hospital (*Med. Jour. of Australia*, August 15, 1914).

Preble states the pneumococcus attacks the aortic valve more often than the mitral, and relatively twice as often as the other organisms commonly causing endocarditis. Pneumococcus endocarditis is much more often left than right-sided, but involvement of the tricuspid and pulmonary valves occurs about four times as often

as it does with endocarditis in general. He believes pneumococcus endocarditis to be relatively twice as common in females as in males. Preble reports a case ending in recovery, and mentions the cases of recovery reported by Robison and Wells.

Pneumococcus meningitis, while not very common, occurs sufficiently often to make it a subject of importance for discussion. Until recently, a diagnosis of pneumococcus meningitis was a death warrant for the unfortunate patient, as nearly all the cases were fatal. During recent years a number of recoveries have been reported, following various forms of treatment. I have had occasion to treat some serious cases of pneumococcus meningitis, with and without pneumonia. Three of our cases also had pneumococcic endocarditis. These occurred in our own service (Dr. L. N. Boston) at the Philadelphia General Hospital. Two cases of pneumococcus meningitis (one of these cases also had vegetative endocarditis) occurred in the service of Dr. David Riesman, and two cases of pneumococcus ulcerative and vegetative endocarditis with meningitis are reported from the service of Dr. Joseph Sailer.

I will report a number of cases of purulent meningitis, which were treated in the Mount Sinai Hospital and in the Philadelphia General Hospital:

One case, a young man, aged 20 years, unconscious, was admitted to our service (Dr. L. N. Boston) at the Philadelphia General Hospital, in a serious condition. He fully recovered, following repeated spinal lavage with normal salt solution, and later weak mercuriochrome-220 solution, and injections of serum, through cisternal and lumbar punctures, from the beginning of the treatment.

A number of recoveries from pneumococcus meningitis have been reported during the past few years. Ervin (*Atlantic Med. Jour.*, June, 1925, 28, No. 9, p. 590) reported a recovery in a woman following the intramuscular and intradural use of Huntoon's pneumococcus antibody solution; 212 c.c. of antibody solution were used.

Several years ago, I reported on pneumococcus meningitis (*MEDICAL TIMES*, 52, No. 8, August, 1924, and *American Physician*, 1923) and reviewed briefly some of the available literature on the subject.

Instances of recovery from pneumococcus meningitis have been reported by Albert E. Roussel, a case of Type II, pneumococcus, simulating diabetic coma (*Atlantic Med. Jour.*, Dec., 1926); one by David Riesman and John A. Kolmer; and another by Horn (*Jour. A. M. A.*, April 21, 1923). Levinson saw one recovery in seventeen (17) cases and mentions twenty-one (21) recoveries in one hundred and two (102) collected cases (*Illinois Med. J.*, 32: 270, 1917). Other cases have been reported by Hemenway (*Arch. Ped.* 1906, 276); Cor-

dua; Lafforgue, Broadbent (*Brit. M. J.* Oct. 28, 1916); Neal; Douthwaite (1924); Rosenow (1920); Litchfield Cumming (1912); Cupler, Royster, Gould (1919); Peterman (1924); Schack (1924); Parkinson Sanders; Rieder (1924); Jeandel (1923); Savy and Gate; Lamar; Ervin (1925); Wolff and Lehman (1913); Chambers and Dobson (1912); Paisseau and Alajouanine (1923); Käding; Schillean and Pasquer; Netter and Cesari; Campbell (1925); Carnovan Brown (*Lancet*, Sept. 16, 1916); Halle (1923); Shand (*Jour. R. A. M. C.*, Jan., 1917); Ratnoff and Litvak (*Arch. Pediat.*, July, 1926). Mitchell and Reilly reported a case of recovery from meningococcal meningitis in a four (4) months old infant, treated by the injection of serum through cisternal puncture (*Amer. J. Med. Sci.*, July, 1922). Syng (1926) reports a recovered case of Type IV pneumococcus, and states that recovery in pneumococcal meningitis occurs in 10 per cent of cases. Jemma, in 1896, reported one of the first cases of recovery from pneumococcal meningitis; Rolly, in 1911, recorded 4 cases of recovery out of 30 under his care, and he found recorded only 7 other instances of recovery. Reports of cases treated by cisternal injections of serum have shown a relatively higher percentage of recoveries in severe cases. McLean and Coffey report 8 recoveries out of 11 patients in who the serum was injected into the ventricles and cisterna magna, because of advanced disease or obstruction of the subarachnoid space. Ebaugh, having 5 recoveries in 8 cases of advanced meningitis, prefers the alternate intracisternal and lumbar injections.

Campbell reports a case of pneumococcal meningitis, treated in Washington, D. C., in October and November, 1921, that recovered. The patient was a boy 16 years old. On lumbar puncture markedly turbid fluid was withdrawn which gave a pure culture of pneumococci. Fluid showed 16,000 cells per cm.m., polys 92 per cent, and mononuclears 8 per cent. Later, a cerebral abscess was drained. About nine lumbar punctures were performed during the course of illness. He was seen by Doctors Hough, Kerr, and Campbell. (*Lancet*, 208: 54, Jan. 3, 1925).

Netter and Cesari reported a case of recovery from pneumococcus type II meningitis, in a child 8 years old who was treated by a turpentine (1 c.c.) fixation abscess, lumbar punctures, and injections of anti-pneumococcal serum (total 40 c.c.) into the spinal canal, and lumbar region. The spinal fluid withdrawn was purulent and contained pneumococci type II. In the pus of the fixation abscess (thigh), was found antigen of the type II pneumococcus, by the method of Ascoli. (*Bull. et mem. Soc. med. d. hop. de Par.*, 47: 763-768, May 25, 1923).

Paisseau and Alajouanine reported a recovery from pneumococcal meningitis in a man 21 years old with lobar pneumonia (middle lobe of right lung), who was given four injections of 60 c.c. each, of antipneumococcal serum intramuscularly, only two lumbar punctures were done. Spinal fluid showed pneumococci, fluid was clear. Paisseau and Alajouanine believe there is a cyto-bacteriologic dissociation with massive invasion of the fluid by pneumococci with no leucocytes being found, in some of these cases. Very often, on the other hand, a very few organisms in the spinal fluid will produce a considerable cellular reaction. This dissociation may be found also in other infections, besides pneumococcal. (*Paris Med.*, 51: 439-443, May 10, 1924. *Bull. et mem.*

In the 15th annual report of the medical department of the United Fruit Company, H. R. Eichelbaum reports a case of recovery from pneumococcus meningitis in a colored man, age 24 years. Treatment consisted of spinal puncture and lavage and intraspinal injections of anti-pneumococcus serum. (1926, pp. 105-108).

Soc. Med. d. hop. de Par., 47: 1625-1630, Nov. 30, 1923).

Halle reports a complete recovery from pneumococcus meningitis in a man 29 years old, following a turpentine fixation abscess in the left thigh, antipneumococcal serum injections into spinal canal and intramuscularly. (*Bull. et mem. Soc. med. d. hop. de Par.*, 47: 757-762, May 25, 1923).

Schack mentions seven cases where early injection of optochin led to a cure. He states W. Friedmann reported the first successful attempts to treat epidemic meningitis by intralumbar injections of optochine hydrochlorid (giving 20 c.c. of an aqueous solution 1:500). Rosenow cured his patient using two injections of 15 c.c. of a 1:500 solution. Schack concludes by saying that "the results obtained from the use of optochin (numoquin hydrochloride 0.02: 15.0 aqua destillata) justify favorable prognosis in cases of suppurating pneumococcal or meningococcal meningitis." Schack used (1:500) Vuzin, intraspinally in one fatal case. (*Münchener medizinische Wochenschrift*, 71:1498, Oct. 24, 1924).

Wieder's patient, a man 38 years old, was treated in August, 1923, with optochin (15 c.c. of 1:1000) solution and pneumococcal antibody solution intravenously and intraspinally. The spinal fluid was turbid, and showed 5000 cells per cm.m. and contained many pneumococci. The mastoidectomy wound was also dressed with optochin solution—this caused marked irritation of the wound. Large amounts of pneumococcal antibody solution were used in this case. The patient died in February, 1924, as a result of an obscure frontal lobe abscess. A total of 1168 c.c. of pneumococcal antibody solution were given; also 45 c.c. of 1:1000 optochin solution intraspinally and 75 c.c. of a 1:2000 optochin solution were injected intravenously.

Heschl in 1862 in reporting 5 cases, called attention to the frequency with which endocarditis complicating pneumonia is found in association with meningitis. (*Oesterr. ztschr. f. prakt. Heilk.*, Wien, VIII, 217, 1862). Several of our own cases reported in this paper confirm this statement.

Preble, of Chicago (*Am. J. Med. Sci.*, 128: 782-796, No. 5, Nov., 1904), states meningitis is a much commoner complication of pneumonia than endocarditis, and that meningitis complicates pneumococcus endocarditis in about 60 per cent of the cases, while only 30 per cent of the cases of pneumococcus meningitis are accompanied by endocarditis.

Karplus, Dora (*Wiener klinische Wochenschrift* 40: 250-253, Feb. 24, 1917), reports 40 collected cases of meningitis (including 3 of her own), in newly-born infants, four of these cases were caused by pneumococci, 12 by B. Coli, 13 by strepto- and staphylococci, etc.

Case Reports

Cases Treated at the Philadelphia General Hospital

Case I—Pneumococcal (I) Meningitis and Ulcerative Endocarditis of Aortic Valve: Mamie G., negress, age 49. Service of Dr. Joseph Sailer, Interne—Dr. Suravitz. Philadelphia General Hospital. Onset of illness April 10, 1924. Admitted April 14, 1924. Died April 16, 1924, at 6:40 P.M.

When admitted—mentality was confused. Mouth twitched to the left. Right arm twitched. Pupils reacted poorly to light. Reflexes increased. Ankle clonus, stiffness of the neck, bilateral Kernig and Brudzinski positive. Soft systolic murmur at apex, transmitted to sternum.

100S.

Blood pressure — 20D. Right base posteriosly gave

dullness, increased tactile fremitus, tubular breathing.

Temperature—99.4-104.

Pulse—123-140.

Resp.—32-60.

Spinal fluid withdrawn under great pressure, turbid, 500 cells, all polys., pneumococci in the smears.

Blood chemistry—sugar 151 mgm. per 100 c.c.

Urea—N—30 mgm.

Uric Acid—4.4 mgm.

Creatinin 1.9.

Wasserman—negative.

Clinical diagnosis—Lobar pneumonia type I.

Autopsy No. 8742—performed by F. L. Hartman, 20 hours after death.

Bacteriological Diagnosis—Heart blood—pneumococcus I.

Gross Anatomical Diagnosis—Heart—Acute ulcerative vegetative valvulitis of aortic valve with perforation into the intraventricular septum, cloudy swelling and coronary thrombosis.

Aorta—moderate atheroma.

Lungs—chronic interstitial pneumonitis and congestion. Lobar pneumonia early grey stage, and fibrous pneumonia lower lobes (right).

Brain—weight 1255 gms. Purulent meningitis. Marked edema; thickened and milky pia—arachnoid; anatomical anomalies of the cortex (Pitts); slight arteriosclerosis. Acute meningo-encephalitis. Multiple cortical abscesses.

Liver—cloudy, swelling; portal cirrhosis.

Kidneys—subacute parenchymatous nephritis.

Heart—weight 400 gms. 13X 9.5 X 7 cm. Coronary vessels tortuous and sclerosed. Acute vegetative endocarditis on the right side of heart at the base of tricuspid valve 1½ cm. in diameter, and over the interventricular septum is an area of acute vegetative endocarditis. One of the aortic leaflets shows vegetative and ulcerative endocarditis. Middle leaflet of aortic valve has a large vegetation measuring 2½ cm. in diameter, reddish-white in color, very friable. It has ulcerated through the base of the valve leaflet, through the interventricular septum into the right side of the heart. Pulmonary and mitral valves show no gross lesions. Left lung, weight 355 gms.—crepitant throughout. Right lung, weight 645 gms.—upper lobe the seat of lobar pneumonia in grey stage. Lower and middle lobes show marked fibrosis.

Adrenals—no gross lesions.

Spleen—no infarction.

Weight—100 gms.

N. P.—24-77.

Autopsy—8742.

Brain—purulent meningitis; thickened and milky pia—arachnoid. Pia-arachnoid in the interpeduncular space is thickened and opaque; over the rest of the brain it is very cloudy. Brain is normal in size and general form. At a glance one notes the yellow exudate under the arachnoid, where it spreads over the frontal poles, and in the vicinity of the anterior portions of the fissure of Sylvius. All of which is suggestive of a pneumococcus meningitis. Marked edema is present. (Dr. R. B. Richardson.)

Microscopic—(Dr. Winkelmann—5/24/24)—Acute meningo-encephalitis. Multiple abscesses throughout cortex.

Case II.—Pneumococcal (IV) Meningitis, with Hypertension—Luther M. Negro. Age 37. Service of Dr. David Riesman. Philadelphia General Hospital. Au-

topsy No. 9635. Admitted to hospital March 5, 1925—died March 7, 1925, at 2:30 A. M.

Had positive Kernig and Brudzinski signs. Spinal puncture—purulent fluid withdrawn, intra- and extracellular organisms present in the fluid. Spinal fluid culture—pneumococcus IV. Chest—was negative. Blood 230 S.

pressure —

128 D.

Blood Wasserman—Negative.

Blood Chemistry—Urea—N—11 mgm.

W. B. C.—16,800; 86 per cent polys.

Autopsy performed by Dr. B. Lucke 12 hours after death.

Clinical Diagnosis—purulent meningitis (pneumococcus group IV).

Heart blood—sterile.

Lungs—contain air throughout.

Brain—(Dr. Winkelmann, 5/6/25).

Gross diagnosis—purulent meningitis. Cors-hemorrhage into subarachnoid space of cord.

Microscopic Diagnosis—purulent meningitis.

(Dr. R. B. Richardson)—Intracranial hemorrhage whole length of spinal cord—this halo of blood is 2 m.m. wide.

Case III—Pneumococcus (IV) Meningitis—Luther E., Negro child, 10 months old. Autopsy No. 17,734. Admitted Dec. 5, 1926. Died Dec. 9, 1926. Service of Dr. Le Boutillier, Philadelphia General Hospital. Interne—Dr. Alice North.

Clinical Diagnosis—pneumococcal meningitis. Is a markedly emaciated colored male infant. Had positive Kernig sign; rigidity of neck.

Heart—normal.

Lungs—normal—no evidence of pneumonia. Child had a cough and "cold"—and vomited six times previous to admission; developed stiff neck and spasms, and typical picture of meningitis. Spinal puncture—25 c.c. purulent fluid removed.

Spinal Fluid—showed 825 cells. Polys 57. per cent. Lymphs 32 per cent. 4 endo.

Culture of fluid—pneumococcus group IV.

Blood—W. B. C. 21,900. Polys. 76. per cent. Lymphs, 19. L. & Trans.—5. Was given 15 c.c. antimeningitic serum and again given the next day. Autopsy No. 17,734, Dec. 9, 1926—performed by Dr. Walsh.

Brain—weight 825 gms.

N. P.—No. 26-414. Very marked yellow-green purulent exudate which covers the whole brain. Ventricles filled with a clear white fluid—(Dr. R. B. Richardson)—purulent meningitis, and if color is taken, appears like pneumococcus meningitis.

Microscopic examination—(Dr. Winkelmann) confirms diagnosis of acute meningitis with polynuclear cell collection in membranes.

Heart—normal.

Lungs—no pneumonic areas. Normal.

Adrenals—normal.

Case IV—Pneumococcus (IV) Meningitis—Daniel B., Men's Med. Service of Dr. R. G. Torrey. Dr. Dillard—Interne. Philadelphia General Hospital. Autopsy No. 8050. Admitted Sept. 18, 1923. Died September 19, 1923, at 4:30 A. M.

Acute suppurative meningitis probably due to pneumococcus IV. Spinal fluid—5280 cells; polys. Blood sugar—228 mgm. Blood Urea—N—12 mgm.

X-ray shows no evidence of fractured skull.

Autopsy performed by Dr. McCutcheon.

Heart blood—pneumococcus IV.

Suppurative meningitis.

Case V.—Pneumococcal Meningitis and Malignant Endocarditis of Mitral Valve—William W., Negro, age 21. Men's Med. Ward 333. Service of L. N. Boston, Chief; H. I. Goldstein, Assistant Chief; R. P. Shapiro, Interne. Philadelphia General Hospital. Admitted April 20, 1926. Died April 22, 1926. Autopsy, No. 17144.

The history obtained from patient's wife. Patient was well until four weeks ago, when patient began to complain of severe frontal headache. A few days later, began to have chills, and fever which continued until admission to the hospital. Complained of pains in the right thigh, right shoulder joint, and later the left shoulder and ankle. A doctor called on the patient April 12, 1926, and diagnosed condition as "rheumatism." Six days later, had hallucinations. Another doctor called in, said the "heart was bad." On April 19th, vomited. Preliminary examination on admission—at 9 p. m.

Lungs—No cough. No shortness of breath. No hemoptysis. Complained previously of pains in the chest. Lost some weight.

Heart—No precordial pain. No palpitation. No edema of ankles.

G. I.—Appetite was good before taken sick. No blood in stools. No diarrhea.

N. S.—Had disturbed vision, unsteady gait and definitely ataxic.

P. M. H.—Never had pneumonia or influenza, or venereal diseases.

F. H.—Married. One child living and well. Wife had no miscarriages or still-births. Mother living and well. One brother and one sister living and well. Father—history unknown.

Subsequent Examination—Patient is a colored boy who lies in bed in a sweat and is apparently weak and asthenic.

Head—Some drooping of the left eyelid and flattening of the right naso-labial fold.

Eyes—Pupils equal, react to light and accommodation. No strabismus. Slight ptosis of the left eyelid.

Nose and Ears—Grossly negative.

Tongue—Heavily coated, protrudes slightly to the right and there is an increase in the left naso-labial fold, but not the right.

Teeth—Gingivitis, dry filament about them.

Throat—Marked injection of the pharynx, soft palate, and pillars of the tonsils.

Neck—Grossly negative.

Chest—Expansion fairly good, but sluggish. No definite impairment. No rales or exaggerated breath sounds.

Heart—Marked pulsation over the precordium. Apex thumping in quality at the fifth interspace near anterior axillary line. Loud systolic murmur at the mitral area transmitted to axilla.

Pulses—Full, equal, regular and easily collapsible.

Abdomen—Flat—Reflexes not exaggerated. Liver and spleen neither felt or percussed below the costal margins.

Extremities—Grossly negative. Biceps, triceps, and knee jerks exaggerated. No Babinski or clonus. **Suggestive Kernig.**

Provisional Diagnosis—1, Rheumatic fever; 2, Endocarditis, mitral valve; 3, Meningitis: Meningococcal Pneumococcal; 4, Mitral regurgitation with vegetations.

April 20, 1926—Wasserman, blood chemistry, blood count, blood culture ordered.

In view of the **rigidity** of the **neck**, exaggerated reflexes, facial paralysis, as well as patient's tendency to doze off, inability to concentrate, a spinal puncture was done at Doctor Goldstein's suggestion.

April 21, 1926—Patient has a definite Kernig's sign. Spinal fluid was sent to Laboratory and neurologic and eye consultations requested.

Eyegrounds—Distinct pallor of the temporal side of the discs. Well outlined left disc, but not so regular as right. No definite signs of choking of discs.

April 22, 1926—Patient examined by Charles S. Potts, who states, "while general symptoms are not very marked, the examination of cerebro-spinal fluid would indicate the probability of meningitis of undetermined cause. Could it be influenza? I am not certain that there is facial palsy. Would suggest frequent lumbar punctures."

April 21, 1926—Eye consultation (T. A. O'Brien)—O. D. media clear. Disc oval. Ax 90. Edges defined. Central physiological cup with some pallor nerve head. Vascularity somewhat reduced. Macula and other structures normal.

O. S. Some infiltration cornea most marked in lower third obscuring fundus details. Co-ordination poor for external manifestations. **Diagnosis**—Incipient optic atrophy.

April 20, 1926. **Blood Culture**—Pneumococcus, Group IV.

Blood Count—R. B. C. 2, 360,000; W. B. C. 23, 400; Hgb. 5.7 gms. Polys. 74 per cent; Lymphs. 7 per cent; Large Monos. and Trans. 19 per cent.

Blood Chemistry—Blood sugar, 100 mgm. per 100 c.c. blood; Urea-N, 18 mgm. per 100 c.c. blood; Uric Acid, 4.0 mgm. per 100 c.c. blood.

Cerebro-Spinal Fluid—Cell count 1290 cu. mm.; Poly., 85 per cent; Lymphs., 5 per cent; Endothel, 10 per cent.

C. S. F. Sugar—below 30. Globulin increased.

C. S. F. A pellicle had formed; faint trace globulin. Polys., 98 per cent; Lymphs., 2 per cent. **Gram positive diplococci found.** No moningococci found.

C. S. F. Wasserman—Cholesterin—negative. Noguchi—anticomplementary.

Colloidal Gold—5555555544.

April 20, 1926—3:30 p. m.—Patient received on admission, morphine sulphate p.r.n. for pain and restlessness. Spinal puncture was done and 45 c.c. purulent fluid removed under marked pressure. His temperature was 103.5 on admission, and then dropped to 100 degrees the next day, and again rose to 105.5 an hour and a half before death, which occurred at 5:30 p. m., April 22, 1926, two days after admission.

Urine Analyses—April 20, 1926: Yellow, alkaline, 1.020, trace albumin, no sugar. Occasional granular cast, urates. April 20, 1926: Yellow, alkaline, 1.020, no albumin, no sugar, phosphates.

Urine Culture—Sterile.

April 22, 1926—**Final Note**: Patient became comatose, could not be aroused and died at the time another puncture was to be attempted.

Autopsy No. 17,144, April 23, 1926. William W. Performed by E. Case, 27 hours after death.

Clinical Diagnosis—Pneumococcal meningitis and endocarditis.

Bacteriological Diagnosis—Heart blood—pneumococcus, group IV. Mitral valve—pneumococcus IV., and Hem. Strept. Spinal fluid—pneumococcus IV., and Hem. Strept. Brain—strept. viridans and staph. alb.

Gross Anatomical Diagnosis—Heart—Malignant endocarditis of mitral valve. Dilatation, especially, of left ventricle. Cloudy swelling of heart muscle.

Lungs—Congestion and edema.

Spleen—Anemic infarction; acute splenic tumor.

Kidneys—Anemic infarction; parenchymatous nephritis.

Liver—Cloudy swelling.

Brain—Purulent meningitis (Dr. Case). Acute purulent meningo-encephalitis (Dr. Winkelman).

Histological Diagnosis—Cloudy swelling of liver, heart, congestion of lungs, acute splenic tumor, pale infarct of kidneys, acute purulent meningo-encephalitis.

External Examination—Body of a young adult male, presenting no external marks of interest. Height, 160 cm.; weight, 95 lbs.

Internal Examination—Subcutaneous fat is rather scanty and muscle tissue is fairly well developed. Peritoneal cavity is free from fluid and adhesions. Pleural cavities contain no fluid, nor were there any adhesions present. *Pericardial cavity* contains a normal amount of clear fluid.

Heart—320 gms. Moderately increased in size, particularly in breadth. It is somewhat softened. Surface is smooth and moist. There is very little sub-epicardial fat. Distinct dilatation, left ventricle. Other cavity shows less dilatation than this one. Muscle tissue moderately firm. Cut surface is rather dull and greyish red. Pulmonic and tricuspid valves normal in appearance. *Mitral valves*—on the anterior leaflets there are two areas of inflam one about cm. in diameter and covered with soft, friable vegetations to a height of 5 mm. Center is depressed and leaflet has been eroded through at this point. About 1 cm. from this lesion there is another one, smaller in size, but of similar character. These lesions are on auricular surface of valve. Aortic valve does not appear to be diseased. Coronaries have these walls and are normal in appearance.

L. Lung—390 gms. This organ crepitates throughout, although it is heavier than normal. There is comparatively little anthracosis present. Cut surface is red and very moist. Upon pressure considerable frothy fluid exudes.

R. Lung—420 gms. Like left lung, it is free front consolidations. In other respects resembles its fellow.

Spleen—190 gms. Rather large; somewhat flabby in consistency. Along the anterior border there is a slightly elevated, yellowish red area, about 2 cm. in diameter. Upon section this seems to be an anemic infarct, fully 3 cm. from base to apex. Rest of spleen is maroon color; pulp is soft. Measures: 13 x 9 3 cm.

Adrenals are firm; normal in size. Cortex not quite as yellow as usual, but aside from this no changes were noted.

L. Kidney—120 gms. Measures: 10 x 5 x 3 1/2 cm. Capsule strips easily leaving a smooth pale red surface. Cut surface is rounded and has a dull appearance. Cortex is lighter in color than medulla, latter being moderately congested. At lower pole there is an area involving surface and extending from junction of the middle and lower third to the lower extremity. In this area vessels stand out distinctly. Tissue net between is yellowish. Cut surface of cortex at this point is extremely pale and also has yellowish appearance. This looks very much like a localized patch of fatty degeneration. No infarcts found.

R. Kidney—120 gms. 10 1/2 x 6 x 5 cm. is the seat of a good sized infarct located about the middle of the outer border. This is fully 2 cm. from apex to base and is quite irregular in outline, there being several smaller infarcts adjacent to it. Rest of kidney is pale and much like the left. *Ureters* are normal. Bladder is distended with urine. Mucosa is white. No evidence of inflammation of bladder or prostatic urethra. Prostate is normal.

Esophagus and Stomach present no gross lesions.

Intestines were not opened but externally they appeared to be free from disease.

Pancreas is firm and of a light straw color.

Liver—1670 gms. Meas. 27 1/2 x 23 1/2 x 5 cm. Rather flabby; brownish in color. Surface is smooth. Cut surface is dull; lobulations indistinct, and organ has a peculiar puffy appearance.

Gall Bladder normal in size and contains dark greenish brown bile.

Aorta—Quite elastic but has a rather small intima. There are a number of narrow yellowish linear patches involving the intima.

Brain weighs 1380 gms. Brain shows well marked purulent meningitis involving the base especially. Further examination will be made by Dr. Winkelman.

Note—Culture was made from mitral lesion. Report will follow. Sections from heart, lungs, spleen, kidneys and liver examined.

Neuro-Pathology—April 22, 1926, N. P. No. 26-158, William W. (Dr. Boston).

Gross description—Specimen: Brain weighing 1380 gms.

Brain—The volume of the specimen is large, because of the general edema. The convex cerebral surface presents a surface which is flattened out, evidence of intracerebral tension. The pia arachnoid as it spreads over the convex cerebral surface present small areas of exudate, over both cerebral hemispheres. Generally, it is moderately opaque. At the base there is definite thickening, the entire interpeduncular space is veiled in. This thickening extends backward over the pons and cerebellum where it becomes creamy in consistency and greenish yellow in color. All structures are concealed. The vessels at the base can just be made out. They are normal. The dura is normal.

Brain on Section—In vertical planes from front to rear show as follows: 1. The ventricular system is enormously dilated. The walls are ragged and there is the same creamy exudate as is seen over the pons and cerebral hemispheres.

Gross Diagnosis—1. Meningitis, pyogenic.

Photo—Taken of the gross specimen. Examinations made by Dr. N. S. Winkelman. Sections taken for block and put in 80 per cent alcohol: 1, Left frontal; 2, Left occipital; 3, Right motor.

May 9, 1926—Sections taken for study and put in 9 per cent alcohol. 1, Left frontal; 2, Left occipital; 3, Right motor.

Stain—*Toluidin Blue*—finished June 30, 1926.

July 3, 1926—N. P. No. 26-152.

Microscopic Description—*Pia Arachnoid* is definitely thickened and infiltrated with cells that are mainly polynuclear in type but phagocytic cells also are found. At no place, in the sections, examined did the exudate penetrate the cortical surface. The ventricle especially at the narrower portions were filled with polynuclear cells and in places there was disappearance of ependymal layer and invasion of the sub-ependymal tissue with reaction in the form of perivascular collaring of the vessels in the surrounding tissue, but no increase of glia.

Cortex shows no structural changes. The ganglion cells show a normal morphology.

Microscopic Diagnosis—Meningo-encephalitis (acute purulent).

DR. WINKELMAN.

Case VI—Pneumococcus Meningitis and Acute Ulcerative Endocarditis I of Aortic and Tricuspid Valves—David F., white, aged 35 years, riveter.

Service: L. N. Boston, Chief; H. I. Goldstein, Ass't Chief; R. P. Shapiro, Interne. Ward 333.

Admitted to Philadelphia General Hospital, March 7, 1926. Died March 8, 1926.

Autopsy No. 16,955. Coroner's Case.

Clinical Diagnosis—(Pneumococcal (?) Meningitis.

Patient was admitted 11:45 p. m. on March 7, 1926, with a temperature of 104 F, pulse 140 per minute, and respirations 50 per minute. Lumbar puncture was done, antimeningococcal serum injected, morphine sulphate given, and luminal ordered for delirium and restlessness, and stimulation.

The following information was obtained from his people: The patient went on a spree two and a half weeks previous to the date of admission. And he was under the influence of liquor for two to three days. He contracted a cold, so he stayed at home, spending most of his time in bed.

At the time he was in bed, he complained of backache, cough, and pains in the chest, and was treated by an outside physician. For the last three or four days, he complained of terrific headaches and was delirious and talked to himself. He has had visual hallucinations, talking about his work, and also to some of his fellow workers, who, of course, were not in the room. About 3 p. m. on the date of admission, he failed to recognize his own relations. He continued to get out of bed, and no longer answered questions. He was quite delirious.

A spinal puncture was done on the patient in the receiving ward, by the ambulance man, and 15 c.c. of spinal fluid was withdrawn. The fluid was very turbid and under a moderate amount of pressure. It was sent to the laboratory, and the report showed 9,000 cells per cu. m.m. The impression was "Spinal Meningitis." (Dr. Hartman.)

The following notes were made in the ward: 1 A. M., March 8, 1926:

On admission the patient is extremely delirious, spits blood-tinged sputum, and has peculiar biting movements of his jaws. If left unrestrained, he puts his hand to his forehead very often. He mutters unintelligible words, and is so active that he required restraint. The patient's history is given by the ambulance man, as above noted.

Physical Examination—Patient is a well nourished and well developed adult male, showing some cyanosis of the lips and ears.

Head—Continually in motion, so that it was difficult to examine. No signs of skull injury.

Eyes—No nystagmus detected on admission. Left pupil larger than the right—both react to light, the left to a less extent than the right. No ocular palsies. Conjunctiva not anemic.

Nose—Grossly negative.

Ears—No discharge. No mastoid swelling, fluctuation. No Battle's sign.

Mouth—Could not be examined because of hyperactivity of the patient.

Neck—Veins engorged. Pulsations of vessels visible.

Chest—Large, well developed, and well nourished. There is a birthmark under the right clavicle anteriorly. The precordial impacts are very powerful and easily seen.

Heart—Extremely rapid and bounding. Very difficult to determine any murmurs because the patient is hyperactive, noisy and grunting. Aside from being rapid, nothing could be determined. Pulses full, equal, bounding, regular in rhythm, and of good quality.

Lungs—Marked impairment over the apices anteriorly. There is palpable rhonchial breathing all over the chest. Breathing is harsh and bronchial in type, all over the chest, but more so at the right apex anteriorly, and at the left apex posteriorly. Coarse rales heard all over

the chest, but more so at the apices.

Abdomen—Soft, flat. No masses palpable. The spleen is neither felt nor percussed below the costal margin. The liver is felt about three (3) inches below the costal margin and percussed that far down.

Extremities—Negative. There is a birth mark on the upper right extremity.

Neurological Examination—*Eyes*—Sluggish reaction of pupils to light. Left pupil larger than the right. No nystagmus.

Signs:	Right	Left
Chvostek	Neg.	Neg.
Biceps	Not elicited	Not elicited
Triceps	Not elicited	Not elicited
Knee jerks	Diminished	Diminished
Kernig's	Suggestive	Suggestive
Achilles	Neg.	Neg.
Babinski	Suggestive	Suggestive
Oppenheim	Positive	Positive
Ankle colonus	Neg.	Neg.
Abdominal reflexes	Neg.	Neg.

Neck rigidity none.

No other neurological tests could be carried out. Muscle spasms at times rather tonic in character.

Diagnosis—Bilateral apical pneumonia.

Bilateral apical tuberculosis.

Meningitis—a—Pneumococcal.

b—Meningococcal.

c—Streptococcal.

d—Tuberculous.

(Dr. R. P. Shapiro, Interne.)

Note—Patient's spine tapped again, and 5 c.c. of bloody spinal fluid removed. It came out very slowly. 15 c.c. of antimeningococcal serum was injected intraspinally. Fluid sent to laboratory. Blood Wasserman and chemistry were taken. Blood count, blood culture and sputum for rapid typing were ordered.

Final Note—March 8, 1926: Patient died at 6:45 a. m., seven (7) hours after admission. The laboratory reports a *Gram positive diplococcus* in the spinal fluid either *pneumococcus*, or *streptococcus*, probably the former. (Signed) Dr. Krumbhaar.

Spinal fluid contains 7,000 cells per cu. m.m., most of which are polys.

Blood chemistry—Sugar 131. Urea: N 15. Uric acid, q.i.

Spinal fluid sugar: below 30.

Blood Wasserman—Negative in both antigens.

Autopsy, No. 16,955.—David F., Male, White, Age 35, died March 8, 1926. Autopsy performed by F. L. Hartmann, March 8, 1926, within 24 hours after death.

Service of L. N. Boston, Chief; H. I. Goldstein and A. E. Blackburn, Ass't. Chiefs; Richard P. Shapiro, Interne.

Clinical Diagnosis—Pneumococcal (?) Meningitis.

Bacteriological Diagnosis—Heart blood—Sterile. Vaginations—pneumococcus Group IV.

Gross Anatomical Diagnosis—Ascites. Bilateral hydrothorax. Hydropericardium.

Heart—Acute ulcerative vegetative endocarditis involving the aortic and tricuspid valves—appearing pneumococcal in type.

Lungs—Congestion and edema; broncho-pneumonia.

Spleen—Acute splenic tumor.

Kidneys—Diffuse interstitial nephritis.

Stomach—Early hypertrophic gastritis.

Liver—Cloudy swelling.

Brain—Purulent meningitis; edema.

Histological Diagnosis—*Lungs*—Passive congestion; early lobular pneumonia.

Spleen—Congestion.

Kidneys—Congestion.

Liver—Fatty degeneration.

Pancreas—Slight fibrosis.

External Examination—White male, measuring 170 cm. and weighing 165 cm. Skin is white in color and shows no scars or wounds externally. Head and neck externally are grossly negative.

Internal Examination—Peritoneal cavity shows no adhesions and contains about 500 cc. of clear straw colored fluid.

Both pleural cavities—each cavity contains about 300 cc. of clear straw colored fluid. No adhesions.

Pericardial sac contains about 120 cc of clear straw colored fluid.

Heart—Weighs 360 gm., measures 13.5 by 10 by 6.5 cm. Epicardium shows no gross lesions. Myocardium cuts with normal resistance, is pale red in color, and shows no increase in fibrosis. Endocardium is grossly negative, except at the aortic valves is a large ulcerative vegetation, involving especially the posterior aortic leaflet, but also the other two leaflets as well. The vegetation itself measures 4.5 cm. in diam.; it is a dirty reddish green color and irregular in shape. There is no attempt at healing at the base, but on the contrary, marked ulceration at this point, the lesion having ulcerated through the ventricle at the base of the valves—extending out beneath the tricuspid orifice and also perforated this valve leaflet. Surrounding the perforation of tricuspid valve is a similar type of vegetation as was seen upon the aortic leaflets.

Aorta—Shows a willow tree type of atheroma, but no areas of ulceration.

L. Lung—Weighs 630 gm. Pleural surface is smooth and glistening. It crepitates throughout. Both lobes show marked congestion and edema and small patches of consolidation are noted in lower lobe.

R. Lung—Weighs 630 gm. This lung has the same diagnosis and appearance as its fellow in lower lobes.

Spleen—Weighs 260 gm. measures 15 by 11 by 4 cm. Capsule is smooth and tense. Organ cuts with decreased resistance. Its cut surface is dark purplish red; follicles are visible. Pulp is soft and hemorrhagic.

Adrenals—Show mod. congestion, otherwise are grossly neg.

L. Kidney—Weighs 180 gm. measures 12 by 8 by 5 cm. It is firm and large. It cuts with ease. Cut surface bulges, it is dark purplish red in color, and is the seat of an ac. diffuse interstitial nephritis.

R. Kidney—Weighs 230 gm. It is like fellow in diagnosis and appearance. Pelves and ureters are open throughout and show no gross lesions.

Bladder—Is grossly negative.

Stomach—Is the seat of an early hypertrophic gastritis.

Remainder of G. I. Tract shows no gross lesions.

Liver—2440 gm., measures 28 by 25 by 9 cm. It is flabby; edges are rounded. Organ cuts with decreased resistance. Cut surface bulges and is glazed, dry and pale, yellowish red in color.

Gallbladder and Pancreas—Grossly negative.

Sections—All organs.

Brain removed, weighs 1400 gm.

KR., David F., March 8, 1926; N. P. No. 26-69; Dr. Boston; Neuropathology.

Gross Description—Specimen—Brain.

The feature of the case lies in the purulent meningitis which is evident over the convex cerebral surface and at the base of the brain.

The specimen is of normal size.

The brain is symmetrical and the consistency is normal.

The convolutions of the cerebral hemispheres present a distinct edema.

Within the membranes and lying to either side of the mesial longitudinal fissure are two greenish areas of purulent material. The one on the right extends for a distance of about two inches and is chiefly in the frontal area and extends slightly over the lateral surface. The area on the left is situated more in the parietal lobe. At the base a small collection of purulent material is seen in the cisterna chiasmatis. The membranes over the cisterna sedularis is much more cloudy than normal.

The vessels at the base are normal.

Section of the brain is made in vertical section from front to rear. The following is noted:

On section no gross abnormality is noted. Sections as follows taken for stock and put in 80 per cent alcohol:

1. Right and left frontal.
2. Right and left occipital.
3. Entire cerebral section with cortex showing the purulent exudate under the meninges.
4. Dentate bilateral.
5. Pons.

Gross Diagnosis—1. Meningitis, purulent; 2. Edema of brain.

Drs. Alpers and Winkelman.

March 30, 1926—Section taken for study and put in 95 per cent alcohol:

1. Left frontal.
2. Right motor.
3. Medulla and dentate nuclei.

Stains—Toluidin Blue.

April 19, 1926—Sections finished.

David F., March 8, 1926; N. P. No. 26-69—Dr. Boston, Neuropathology. 16955.

April 27, 1926—*Microscopic Description*—Pia arachnoid is so very variable. In some places showing no change but in other places, especially as one approaches the base or the superior longitudinal fissure there is a marked infiltration with cells that are mainly polynucleated.

Cortex—General architecture preserved. Cells show general pallor in staining reactions.

Vessels—Especially the larger ones at the base show definite intimal thickening with degeneration. Changes (much more than is usually seen in a man of 35 years).

Microscopic Diagnosis—1. Meningitis—acute purulent; 2. Moderate arteriosclerosis.

DR. WINKELMAN.

Case VII—*Pneumococcal Meningitis and Lobar Pneumonia (Right Lung)*—General Grant S., Negro, aged 35 years, Steel work. Admitted April 8, 1926, at 4 P. M. Died April 9, 1926, at 9:10 P. M.

Service of L. N. Boston, Chief; H. L. Goldstein, Ass't. Chief; R. P. Shapiro, Interne. Philadelphia General Hospital; Men's Medical Ward; Autopsy No. 17,094.

Patient died 29 hours after admission. He received (20%) glucose, and sodium bicarbonate solution (5%) by rectum; oxygen for fifteen minutes every hour; morphine sulphate, stimulation; adrenalin and atropine; heat; warm black coffee by rectum; spinal puncture done, and given intravenously (100 c.c. antipneumococcal type I serum, and 100 c.c. polyvalent 1, 2, & 3 antipneumococcal antibody solution, and Huntoon's concentrated (10. c.c.) antibody solution, in 30 c.c. normal saline, intraspinally, after withdrawing 40 c.c. spinal fluid.

The following information was obtained from woman at whose home the patient lived:

Chief Complaint—Pain in right side and base of chest.

H. P. I.—Patient was not sick until time of present illness and admission; there is no history of his being

sick before. The informant states that he left home in the morning of April 8th, 1926, and the next she heard of him was that he was brought to The Philadelphia General Hospital. His brother, however, states that on morning of April 7th, 1926, he received a letter in Harrisbury saying that he was sick.

On admission April 8, 1926, at 4 p. m., patient has a temperature of 104 degrees F. Pulse 140. Respiration, 50.

He is extremely quiet, is well nourished and well developed adult colored male who shows signs of delirium. His eyes are wide open and his pupils are dilated fairly well. He shows no rolling about in bed, but the respirations are extremely rapid and labored.

Head—Marked rigidity of the neck and very apparent coma vigil—otherwise the head is grossly negative.

Eyes—Pupils equal in size, react fairly well to light—accommodation reaction could not be determined. No nystagmus, no strabismus, no ocular palsies. struction or discharge.

Ears—Grossly negative. No discharge, no mastoid swelling seen and no mastoid tenderness could be determined.

Neck—Marked rigidity and marked pulsation of vessels. No definite glandular enlargements.

Chest—Fairly well nourished and developed—expansions rapid and full—visible pulsations in the precordial area—the percussion note is impaired throughout the middle and lower right lobes, both anteriorly and post. Tactile fromitus and vocal resonance because of the patient's condition could not be elicited. The breath sounds are broncho-vesicular over the upper lobes, and bronchial or tubular over the right middle lobe and right base. Many rales of the fine and medium type heard in these areas.

Heart—The heart sounds could not be determined very well because of the tubular breathing, grunting and noisy respirations. It is, however, extremely over-active. No murmurs or thrills could be determined and the patient is too sick to outline the size of the heart.

Pulses—Full, equal, regular in rate and rhythm, bounding and difficult to collapse.

Abdomen—Flat in type—abdominal reflexes elicited. Liver and spleen neither felt nor percussed below the costal margins. The bladder is greatly distended, percussion over whole abdomen is flat. Inguinal glands not definitely enlarged.

Extremities—Grossly negative.

Note—The entire neurological examination as far as could be determined was entirely negative, except for the neck rigidity and the coma vigil.

Diagnosis—1. Lobar Pneumonia, right base, middle Lobe; 2. Meningitis—Pneumococci?—(Dr. R. P. Shapiro.)

April 8, 1926—5 p.m.—Blood Wassermann, chemistry, stat blood count, blood culture, specimen of urine and urine culture sent laboratory. Spinal fluid removed and found not to be under great pressure. Slightly cloudy—sent to laboratory for cell count, globulin, sugar, type of organism, culture, Wassermann, colloidal gold and rapid typing.

Note—Patient is not co-operative, appears conscious but is not responsive and is very resistant to any examination.

April 9, 1926—Patient in coma. Profuse sweat—condition is very poor and prognostically very grave. No laboratory reports yet.

April 9, 1926 (2 p. m.)—Laboratory report over the phone. The Spinal fluid culture appears that it may be type I. pneumococcus.

(3 p. m.)—Given 100 c.c. type I. anti-pneumococci serum intravenously.

(4 p. m.)—No reaction noticed. Dr. Huntoon of the Mulford Laboratory called and said the intra-spinal serum is to be sent out this afternoon.

(5 p. m.)—Patient comatose, suggestive Kernig—Flexion of the head causes pupillary contraction. Breathing is rapid but not edematous.

(6 p. m.)—Given 100 c.c. of concentrated anti-body solution sent from Mulford's (intravenously). Also 10 c.c. concentrated antibodies in 30 c.c. of normal saline given intra-spinally after 40 c.c. of spinal fluid was removed.

Final Note (9.15 p. m.)—Patient's temperature went up to 109 degrees, pulse and respiration could not be determined. Patient died suddenly.

Final Diagnosis—1. Lobar Pneumonia; 2. Pneumococci Meningitis.

LABORATORY REPORTS

Blood sugar—135.

Uric acid—4.0.

Urea Nitrogen—16.

Blood Wassermann negative in both antigens.

Blood culture—Gram positive Coccus-Pneumococcus Type I.

Blood count—R. B. C., 4,100,000.

Hmgb, 12.1 grams.

W. B. C., 11,900.

Poly, 87%.

Lympho, 12%.

Mono and Trans, 1%.

Urine Analysis—Color, Yellow.

Reaction, Acid.

Sp. G., 1.025.

Album., Trace.

Sugar, Negative.

Leucocy, 15-20 per LPF.

Mucous, Double Plus.

Epith., Cells, Many.

Urine Culture—Negative (sterile).

Spinal Fluid—Cell Count, 50 per C. MM. 100% Polys.

Rapid Typing, Pneumo. Type I.

Culture, Pneumo. Type I.

Wassermann, Anti-complementary.

Coll. Gold—4443321100.

Sugar, Not reported.

C. S. F.—Smear—Pellicle formed. Loaded with gram positive—diplococci (pneumococci) or few short chains strept?

The following information was obtained from the patient's landlady:

History—April 8, 1926, 11:00 p. m.—C.C.—Pain in the right side and base of right lung.

H. P. I.—Patient has not been sick up until admission and there is no history of any complaint before this time. The informant states that the patient left home on the morning of April 8, 1926, and the next she heard of him was that he was brought into The Philadelphia General Hospital at 4 p. m. the same day. (Brother states that on the morning of April 7, 1926, he received a letter to the effect that the patient was sick.)

P. M. H.—Measles, mumps, chicken pox. Denies any knowledge of any venereal infection in patient.

F. H.—Widower—wife had no children, miscarriages or still births. No. F. H. of Ca. Tbc., or diabetes.

Social History—Steel worker most of his life. Moderate user of intoxicating drinks and tobacco.

Autopsy—No. 17,094.

General Grant S., Male, Negro, age 35. Died April

9, 1926. Performed by R. T. Rohwer, April 10, 1926. Within 24 hours after death.

Service—L. N. Boston, Chief; H. I. Goldstein, and A. E. Blackburn, Ass't. Chiefs; R. P. Shapiro, Interne. *Clinical Diagnosis*—Pneumococic Meningitis.

Lobar Pneumonia.

Bacteriological Diagnosis—Heart blood—sterile.

Lung—Sterile.

Meninges—Pneumococcus type I.

Gross Anatomical Diagnosis—Heart—Acute myocardial degeneration; dilatation.

Left Lung—congestion; healed T. B. scar.

Right Lung—Lobar pneumonia; fibrino—cellular pleurisy.

Spleen—Acute splenitis.

Kidneys—Extreme cloudy swelling.

Liver—Cloudy swelling; fatty degeneration, and congestion.

Pancreas—Cloudy swelling.

Adrenals—Post-mortem degen.

Brain—Meningitis (pneumococic), edema.

Histological Diagnosis—Heart—Acute cloudy swelling.

Lungs—Lobar pneumonia; resolving fibrino-cellular, subacute pleurisy.

Spleen—Acute diffuse hyperplasia.

Kidneys—Marked cloudy swelling, fatty degeneration.

Liver—Marked cloudy swelling.

Pancreas—Cloudy swelling.

Lymphnodes—Diffuse hyperplasia, congestion.

Cause of Death—Lobar pneumonia and pneumococic meningitis.

External Examination—Black male, measuring 170 cm., and weighing 137 lbs. External examination—no skeletal deformities. No skin lesions. Eyes, ears and nose negative. Mouth negative.

Internal Examination—Abdomen—No fluid. No old or recent adhesions. Viscera in normal position.

Thorax—Thymus not demonstrable. Left pleural cavity negative. Right pleural cavity shows fibrino-cellular adhesions present.

Detailed Examination—Heart—Weighs 400 gm. Extremely flaccid. Right side is dilated. Normal amount of subepicardial fat. Coronaries negative. Myocardium is pale reddish grey in color, very flaccid. Epicardium, endocardium, and valves are negative. Left ventricle average 15 to 8 mm, the right ventricle from 5 to 2 mm. Orifices measure: tricuspid 14, pulmonic 7½, mitral 15, and aortic 7 cm.

Left Lung—Weighs 700 gm. There is a T. B. scar at the apex and the bronchi contain a mucoid, blood tinged material. It is crepitant throughout and extremely congested. There are no areas of consolidation.

Right Lung—Weighs 1650 gm. Pleura—both parietal and visceral are dark and have ground glass hazy appearance. The entire upper, middle and upper two-thirds of the lower lobe are completely consolidated. On section—they have a coarsely granular, grey red appearance and are mod. moist. Bronchi contain a muco-purulent blood tinged secretion. The extreme lower lobe is intensely congested.

Spleen—Weighs 200 gm. It is twice normal size, and is pale purple grey in color. Surface is smooth. It is mod. firm in consistency. Little pulp can be scraped off, follicles stand out slightly.

L. Kidney—Weighs 270 gm. measures 14 by 8 by 4 cm. It is extremely flaccid and pale red in color. Capsule is thin and strips readily leaving a smooth surface. Cut section bulges—cortex and medulla present in normal ratio. Markings are indistinct. Pelvis and ureter negative.

Right Kidney—Weighs 220 gm. Similar to the left except that there is a small nodule present in the medullary portion about the size of a split pea.

Liver—Weighs 2300 gm. measure 32 by 23 by 7 cm. It is extremely enlarged, very flaccid, a purple brown color, mottled with areas of yellow. Cut surface bulges.

Pancreas—Very flaccid. No hemorrhagic fatty or fibrotic changes.

Adrenals—Are markedly degenerated.

Bladder and ureters—Negative.

G. I. Tract—Sections—heart, lung, spleen, kidney, liver, pancreas and lymph node.

Brain removed—weight 1670 gm.

April 10, 1926. N. P. No. 26-129. Dr. Boston; Neuropathology.

General Grant S.

Gross Description—Specimens—1. Brain weighing 1670 gm.

Brain—The feature of the case lies in the purulent meningitis, which involves the entire brain surface. The shade of the exudate suggests a pneumococic infection.

The volume of the specimen is much above the usual.

The consistency is not abnormal.

There is no asymmetry.

The pia arachnoid presents a greenish grey purulent exudate within its confines, which involves the entire brain surface and envelopes the vessels at the base.

The convex cerebral surface presents much broadened convolutions, although the sulci have not as yet been lost.

The vessels at the base are small. No plaques formation is observed.

The veins of the convex cerebral surface engorged and prominent as they coalesce to empty into the superior longitudinal sinus. No thrombosis of this sinus can be made out.

Sections of brain—No section made at this examination, in that picture of the specimen is to be made.

Gross Diagnosis—1. Meningitis, pneumococic. 2. Brain edema. (Drs. Kubitschek and Richardson.)

April 21, 1926—Section taken for stock and put in 80% alcohol.

1. Section from formalin: quick paraffin.

2. Tips of temporal lobes.

Stain—H and E finished, June 26, 1926.

June 17, 1926—*Microscopic Description*.

Pia Arachnoid—Much thickened as result of accumulations of polynuclear leucocytes within the sub-arachnoid space.

Cortex—General architectural arrangement normal but scattered throughout are collections of polynuclear cells within the perivascular spaces, some with considerable hemorrhage.

Microscopic Diagnosis—Acute meningo-encephalitis. (Dr. Winkelman).

(To be continued)

Typhoid Dissemination

During the past few years the epidemiological picture of typhoid fever has been greatly changed. Instead of being a disease distributed chiefly by water supplies and, therefore, attacking the urban section of our population, epidemiological studies reveal the fact that the rural and small-town population are more often afflicted and that explosive epidemics are now more often milk-borne than water-borne in origin.

Contact infections and the contamination of foods by infective house flies also play an important role in the dissemination of the disease, this type of dissemination being the chief sources of the sporadic or endemic type of cases.

It seems perfectly obvious that every anti-typhoid campaign must include in its program an effective method to insure clean and safe milk if progress in the further reduction of the incidence of typhoid fever is to be assured.

“The Strategy of Obstetrics.”*

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INTRODUCTION. A campaign of whatever nature can not be carried to successful fruition without observing every rule of strategy. The most formidable antagonist is not always the skilled tactician, but rather he who combines the high art of tactics with the still higher art of strategy.

Throughout recorded history beginning, for example, with the siege of Troy, artful strategy has proved the all sustaining “strong-arm” of the victor and hasty tactics the vacillating “weak-knee” of the vanquished.

The campaign one manifestly is forced to wage in obstetric work affords greater opportunities for the practice of preventive measures, the strategy of obstetrics, than any other department of medicine.

Obviously, intra-partum manipulation has its place in maternity work, but a good strategic obstetrician offers far more for a prospective mother and her offspring than the skilled obstetric manipulator.

It is safe to say that no function performed by the human frame is fraught with more potential danger than pregnancy with its culmination in labor. There is no process, customarily described as physiologic, so frequently associated with pathologic complications as pregnancy.

In this country the annual maternal and fetal mortality resulting from the accidents of pregnancy with its consummation in parturition is stupendous and almost approaches a national calamity. This statement applies equally to the numberless mothers and babies who are physically crippled from injuries sustained during parturition. The inordinately high obstetric mortality and morbidity as recorded in America places our country number fourteen in the sixteen principal civilized nations of the world.

This appalling state of affairs is largely due to ignoring, wholly or in part, the factors of safety in obstetric work, or in other words the tardy or perfunctory practice of antenatal care. It may be conservatively stated that the number of mothers who annually succumb to the complications of pregnancy and the accidents of labor in this country totals or exceeds twenty-five thousand.

Of the nearly two million babies born in the registration area of America every year, approximately one-sixth or about 300,000 are born dead or die during or shortly after delivery. Apart from the high maternal and fetal mortality, no human mind can conceive of the vast army of mothers rendered physically and functionally altered or the multitude of babies left physically incompetent or mentally deranged. Herein lies the grim drama of child-birth.

The conditions chiefly responsible for the tremendous toll of maternal lives are septic infection, toxemia, and antepartum hemorrage.

These three complications form the great lethal triad of pregnancy and labor, infection claiming eight to ten thousand, toxemia six to eight thousand and hemorrhage four to six thousand human lives.

It is generally believed that the high mortality and morbidity are largely unnecessary. It is also conceded that

by the systematic supervision of all patients during pregnancy seventy-five per cent. or more of the maternal and an equal percentage of fetal deaths could be prevented. By the methodical observance of this safe-guard it is certain that seventy-five per cent. of the morbid complications of pregnancy and labor, both maternal and fetal, could also be avoided.

I am quite sure the extreme importance of ante natal work is generally appreciated, but unfortunately this most dependable recourse of the physician is not zealously practiced, at least not to the extent or as zealously as it should be. With the wide spread knowledge that obstetrics has not kept abreast of its sister branches efforts have and are constantly being made to accord prenatal supervision its proper station in obstetric work, but it is only within recent years that has been receiving the attention, long over due, it actually deserves.

Since it is obvious that the secret of successful obstetric practice resides chiefly in ante-natal care, this protective goddess of the expectant mother, the “Juno Luccina” of obstetrics, must more zealously be evoked.

As an outstanding example of the transcendent value of high grade antenatal care. I should like to direct attention to the phenomenal results recorded by Polak in his clinic.

This writer reports 1000 consecutive maternity patients who were carefully ante-natally supervised and delivered by himself or by his assistants with only nineteen still births.

In a second series of 1000 patients who received only partial antenatal care there were forty-seven babies still born.

In a third series of 1000 patients who received no antenatal study at all there were eighty still born babies or over four hundred per cent. more than in the first group of 1000 who were solicitously studied during the antenatal period. These figures demonstrate clearly that adequate pre-natal supervision is, indeed, the protective goddess of the prospective mother. Antenatal obstetrics is in truth preventive obstetrics.

To emphasize further the value of antenatal care, especially as regards the prevention of that most alarming and highly fatal complication of pregnancy and labor, namely, eclampsia, I shall quote from a recent paper of Dr. Asa B. Davis, Chief Obstetrician of the New York Lying-In Hospital.¹

Dr. Davis reports his observations covering a period of thirty years. During this period there occurred 152,248 deliveries with 879 cases of true eclampsia.

During recent years Dr. Davis has noted a gradual diminution in this exceedingly grave complication of pregnancy and labor and he is convinced that the incidence of the disease will still further be reduced.

In a single period prior to 1922 seven cases of eclampsia were observed. During the year 1922 with 5,400 deliveries only eight cases of this disease with one maternal death occurred.

A similar observation was made in 1923. While formerly a considerable number of eclamptic patients were seen, the disorder now is so rare, states Dr. Davis, that

* Read at the annual meeting of the Lancaster City and County Medical Society, Lancaster, Pennsylvania, January 5, 1927.

1. Journal American Medical Association, July, 1926, Volume 87, Page 233-236.

the interne staff and pupils can gain no clear idea of the gravity of the disease. This fortunate state of affairs he believes has resulted from systematic antenatal study combined with emphasizing to the patient that the best time to treat eclampsia effectively is long before it occurs. Based on the decreasing incidence of eclampsia, Davis believes that the emergency cases should likewise disappear.

To stress this conviction he cites the high point of fifty-seven cases of eclampsia in 1914 to the low point of eight cases in 1922, a reduction of nearly seventy per cent. in eight years.

It is, indeed, not too much to expect that eclampsia, except those extraordinary subtle or fulminant cases, will gradually disappear as one of the most serious and fatal complications of pregnancy and parturition.

The Obstetric History. It would seem almost fatuous to consider in this paper such an elementary topic as the obstetric history, but I am familiar with no phase of antenatal study more important than it. In this connection I should like to refer and at the same time condemn the custom of utilizing the history blanks prepared by certain commercial houses.

History cards, so-called, prepared by these institutions are not suited for the purpose at all. The history sheet or chart designed by the American College of Surgeons answers very well, but a card framed by the individual practitioner is far better. The chart also prepared by the committee on Standards of Prenatal Care, Childrens Bureau, United States Department of Labor, is of real practical utility.

A card or chart should be so designed that every feature of the patient's record can properly be recorded and so arranged that every phase of her condition be given special prominence, an outstanding significance.

The history should obviously include all phases of what is regarded as a complete "clinical record". It should begin with the:

Family History:

In obstetric study the family history seems to receive very little, if any, attention, yet it should be regarded as an exceedingly important feature of the obstetric record. Special data should be noted with respect to plural pregnancy and likewise to fetal deformities, since, in most instances hereditary influence seems to be the chief etiologic factor in these conditions.

The role played by hereditary constitutional disease, while probably of minor importance, should also be kept in mind.

Another phase of the personal history is that relating to *Childhood:*

This should include a careful study of the antecedent history of the patient, especially with regard to the acute infections with their sequelae. A record as to the influence of acute infections on the subsequent life of the patient should be recorded. It is well also that this part of the clinical history should include any accident, injury or operation suffered by the patient at any period during her life.

No portion of the clinical history calls for more scrutinizing study than the *Menstrual History:*

This should comprise the date of advent of the menstrual epoch. The character, quantity, duration and regularity of the flow are exceedingly important phases of this part of the history. It should include, above all, the date of the last period, the feature on which the probable date of confinement is based, as well as its outstanding importance as a highly suggestive symptom that pregnancy actually exists. Disregard of this "tell-tale" symptom has often led to embarrassing, if not

mortifying errors in diagnosis. How many women have been exposed to the serious hazards of an abdominal incision ostensibly performed for the removal of a uterine myoma,—a myoma mistaken for a pregnancy,—simply from the failure of the surgeon to note the date of the last period, no one is able to say. It is safe to say that disregard of this invaluable symptom has led likewise to the accidental performance of numberless abortions.

Naturally an obstetric record would be no record at all if it did not chronicle a *Complete Marital History:*

In this should be incorporated the age of marriage, since it is vastly important to remember that women, like the seasons, reach a period when they are capable of bearing offspring without undue risk of injury to themselves or their babies. Marriage very early or very late in life does not provide this season of relative safety.

The number of pregnancies with their character and ultimate termination should be categorically considered. Simply to inquire as to the number of children born is not sufficient. Since many pregnancies terminate, (one out of four) in abortion or miscarriage, conditions sometimes more serious than labor at full term, the cause of abortion, spontaneous or induced, with the character of convalescence should constitute a part of the record. This should be followed by the number of full term labors with their character, especially with reference to spontaneous or operative delivery.

Again the nature of recovery from each should be noted. A convalescence covering a period of fourteen days usually indicates a normal recovery, but a convalescence of twenty-one days or longer indicates an eventful one and not infrequently an infection. Notations should be made of lacerations with regard to their extent combined with the nature and result of repair. Then should follow a description of the period of involution. Finally, a record of the remote physical state of the patient following complete involution should be noted.

Physical Examination. With the completion of the interrogatory phase of the history comes the physical examination and under this heading the following questions arise:

- First, what structures should be investigated?
- Second, when should the examination be performed?
- Third, how often should it be repeated?

These three questions are easily answered. Obviously, the investigation should include all vital structures, since all are more or less altered in pregnancy; hence, a fault here or another there, figuratively speaking, may have a very important bearing on the pregnancy or labor or both.

The examination should begin with the head and—aside from the familiar diagnostic sign—the mask—special emphasis should be placed on a very careful investigation of the teeth. Excavated teeth call for temporary care and infected ones for extraction, irrespective of the stage of the patient's pregnancy. Oral antisepsis should be observed throughout the gestation and this should be looked after not only by the patient, but the patient's dentist as well. I have seen very grave cases of infection develop in patients suffering with badly infected teeth and from the same cause I have observed very severe cases of debility and secondary anemia arise during the course of pregnancy. The importance of eliminating all sources of focal infection, I should like to mention in this connection, can not be over emphasized.

Since the thyroid gland is visibly and palpably enlarged in more than forty per cent. of pregnant women, the extent and character of thyroid enlargement should be noted, followed in certain cases by a basal metabolic test.

Next in order, the condition of the breasts should be studied and if any abnormalities are observed, they should, manifestly, be corrected. The investigation of the breasts should be made not only for the value they portray as diagnostic criteria, but also to determine the presence or absence of anomalies. Coincident with the examination of the breasts a study of the lungs should be made.

The systematic examination of a pregnant patient, especially as regards the vital organs, would be wholly incomplete without a careful cardiac study. If there be any evidence of heart incompetency or any sign of valvular trouble, the ability of the organ to perform properly its function under the stress of pregnancy should be determined by cardiography. No pregnant patient manifesting symptoms or signs of organic cardiac disease should be permitted to reach the thirty-second or thirty-sixth week of gestation without determining the competency of the heart by means of the electro-cardiograph.

After completing the examination of the organs situated in the thoracic cavity, there should follow in sequence, a complete investigation of the abdomen. *Inspection* should determine the degree and extent of discoloration as well as striation of the abdominal wall. The extent of the distention with its contour should be chronicled and of special importance is the determination of the length of the fundus from the symphysis pubis. By this method, perhaps better than any other, the stage of pregnancy can be determined.

Then in order should follow *Palpation*, determining the relation of the fundus to the topographical landmarks of the abdominal wall. The relation of the fetal poles to the poles of the abdominal cavity and especially the relation of the presenting pole to the pelvis.

Following palpation the site, rapidity and regularity of the fetal heart sounds are studied by *Auscultation*. The funic souffle, provoked by some abnormality in the cord, if present, should be noted.

A *Blood Pressure* reading should now be made. This procedure is one of the most, if not the most, reliable antenatal guide of the obstetrician. It is comparable to the barometer and on it one can foretell the approach of serious storms or cloudless skies.

Blood Wassermann. In well regulated maternities, as well as in private work, the routine collection of blood for a Wassermann reaction is now a recognized procedure. By this means syphilitic infection may be detected and proper treatment, irrespective of the stage of pregnancy, may be applied. In some clinics this practice has led to the reduction of syphilitic disease in the new born to an negligible degree.

In one clinic, it is claimed, the method has reduced the number of still birth to almost nil.

Pelvimetry. Following the procedures already enumerated, the next—and one of paramount importance—is pelvic mensuration. While I am wholly cognizant of the teaching and fully appreciate that the baby's head is the best pelvimeter, I am equally confident that no mariner would attempt to sail the seven seas, even though he knew his ship, (the fetal head), and the channel, (the birth canal), were free from disproportion, without his dependable compass. The pelvimeter of the obstetrician is comparable to the compass of the navigator.

Would any individual trust his life to the engineman who disregarded the block signal system of our great trunk lines, indicating either trouble or a clear right of way ahead? No obstetrician can afford to expose himself to censure and his patient to unnecessary hazards by failing to practice routine pelvometry.

The inexpensive obstetric compass, the pelvimeter, is available to every man and no doctor is justified to embark on the practice of obstetrics without including this implement in his utility equipment. No obstetrician would think of starting obstetric work without providing himself with forceps, but the pelvimeter many men seem to regard as an unnecessary impediment and not an instrument of utmost utility. It would be far better to think of the pelvimeter first and the forceps last.

Blood Pressure. As a matter of reiteration I should like, at this time, to again direct attention to the vast importance of blood pressure study. Now if the pelvimeter is analogous to the mariner's compass, so one may regard the blood pressure apparatus, the sphygmomanometer, as the barometer, or, one might say, the submarine danger signal, the implement designed to keep the ship from encountering shoals or literally going on the rocks.

Of all the safety devices thus far placed in the hands of the obstetrician, the sphygmomanometer is by far the most accurate and dependable. It is simplicity itself and it conveys to the observing accoucheur approaching or impending danger and it conveys these signs in bold luminous figures. It therefore, indicates oncoming dangers, complications, and it indicates these sufficiently early that in most cases serious trouble can be avoided.

We do know that most cases of early toxemia, indicated by a progressive fall in blood tension, and late toxemia, indicated by a progressive rise in tension, can be recognized sufficiently early to prevent serious consequences. Before this simple device became part and parcel of obstetric equipment there was no adequate means of estimating the intensity of toxemia, but to-day the degree of metabolic auto intoxication can literally be determined in fractions, in millimeters of mercury.

How many expectant mothers have been saved from the almost inevitable fatal termination of toxemia by blood pressure studies is beyond imagination. Certainly the serious consequences of grave toxemia are now rarely seen. This gratifying state of affairs has resulted almost wholly from the use of the blood pressure instrument. It is the outstanding implement in prenatal management.

Urinary Studies. A systematic examination of the urine every four weeks should comprise a part of prenatal study, but this is not so dependable as blood pressure investigation. Renal dysfunction or frank organic renal disorder is invariably preceded by altered tension. Hence, urinary findings may only aid in confirming a revelation already disclosed by blood pressure observations. Of course, the urinary output should be known and this combined with routine chemical as well as microscopic examinations should comprise a part of every prenatal investigation. Not too much diagnostic importance, however, should be placed on urinary findings alone, unless they be of an outstanding nature.

Blood Count. It would be well to incorporate in the antenatal investigation an ordinary or, if thought wise, a complete blood count, one being made about the third month and another about the sixth or seventh month. If this investigation discloses a blood picture, as it sometimes does in pregnancy, well below normal, the possibility of a focal infection being the underlying cause, should be kept in mind.

It is obvious that marked diminution in the quality of the blood might lead to serious trouble. Infection is favored thereby. The bleeding which normally follows the third stage of labor may be of such a character as to convert a mild secondary anemia into a very grave secondary anemia. Under such circumstances numerous portals are opened and the patient is exposed to a variety of hazards.

Blood Chemistry. Thus far blood chemistry has not

contributed to any material extent in helping the obstetrician to early recognize and combat the serious complications, the toxemias, for example, of pregnancy. Despite extensive investigation in this field, it may be said that this method has added little either to the recognition or therapy of the complications of pregnancy. In the grave toxemias blood chemistry has scarcely helped at all. The Van den Bergh and Rosenthal tests for hepatic derangement—hepatic toxemia—sometimes proves helpful, though recently, I observed two patients with early toxemia in whom the Van den Bergh test was negative on two successive occasions. Notwithstanding the negative reactions, these patients developed jaundice within twenty-four hours after a therapeutic evacuation of the uterus and died two days later. The reliance placed on this test, I fear, proved fatal to these patients.

Internal Examination. The next feature of prenatal investigation is one of extreme importance, if actually not the most important phase of antenatal study. I refer to the internal examination. Formerly, it was taught that this very essential step of prenatal investigation should not be performed at the first consultation, but postponed until the second or some subsequent visit of the patient. This course is still advised by many eminent teachers.

The method, it seems to me, is not founded on true merit, but rather on custom. Occasionally, a patient may object to an internal examination during her first visit for some personal reason, but rarely on the ground of modesty, lack of confidence in or familiarity with the doctor consulted, as has been so long taught.

There are very clear reasons why the internal examination should be performed at the time of the first antenatal inquiry. First, it is well to recall that by this method only can an early pregnancy be recognized. In many instances the patient is exceedingly anxious to have her suspicions confirmed at the first consultation and often this is her chief reason for visiting the doctor early.

In the second place, it is by vaginal examination alone that one is able to determine whether the pregnancy is in any way complicated—complicated, for example, by venereal infection, serious pelvic deformity, genital anomalies or neoplastic disease. It is by this method, furthermore, that one is able to determine whether the pregnancy is within or without the uterine cavity.

Recently, a patient was admitted to my service with signs of grave intra-abdominal disease. Her skin was pallid, blanched, cold and clammy. Her radial pulse was scarcely perceptible. Her temperature was far below normal. A few hours before admission she suffered an attack of agonizing pain in the left lower abdomen, followed by the symptoms enumerated above. With this combination of phenomena a tentative diagnosis of a ruptured tubal pregnancy was made, and an abdominal operation was performed immediately. The abdomino-pelvic cavity was literally inundated with blood and a fetus, ten centimeters in length was found suspended from a large ragged rent in the left Fallopian tube.

The patient had been seen on two occasions at least, by a prominent physician, but she had not been examined. A history of "spotting" preceded the tragic stage of her trouble by some days, but this her doctor regarded, she said, as a sign of threatened abortion.

As regards the number and repetition of vaginal examinations, I personally believe the recourse should be practiced with every return visit of the patient. By some this plan may be regarded as of doubtful utility, but on several occasions I have been able to detect and prevent a symptomless oncoming abortion or miscarriage.

Recently, the daughter of a prominent physician came

under my care. She was exceedingly anxious "to raise a family." She had been married for four years, but she had not conceived. To favor fertility she had even submitted to one abdominal operation and two minor vaginal operations. Finally, she consulted me and stated that her last menstrual period had occurred two months before. Examination disclosed an early pregnancy. The patient was seen every four weeks thereafter. On each occasion an internal examination was made. Her health during this time was excellent. On her return visit at the end of the twenty-fourth week an internal examination disclosed the cervix dilated to the extent of three centimeters. The membranes, in "watch crystal form", were bulging and the fetal head was presenting in the dependent bag of waters. There was no discomfort nor was there bleeding of any kind. The patient was taken home and placed in bed with the foot of the bed elevated. She was kept under the influence of sedatives for several days. The cervix partially closed, but not completely. About the twenty-eighth week she went to labor and delivered herself spontaneously of a live girl baby. Despite the premature expulsion of a far from mature baby, it, I am glad to say, is now living and well.

If, occasionally, one is able to preserve a human life, is not the routine practice of vaginal examination during the antenatal period really worth while? I feel very strongly on this point. I believe that vaginal examination should be performed every four weeks and not limited, as is so frequently advised, to one investigation in the early weeks of pregnancy and another a short time before full term.

There is still another question relating to vaginal investigation calling for discussion, namely: "Should the procedure be performed in patients approaching full term or in patients near or in labor?" This interrogation must be answered negatively. *I am familiar with no method of study which carries greater danger to the mother, both from the standpoint of morbidity and, possibly, mortality than the indiscriminate, unskilled and oft-times perfunctory routine vaginal examination in patients near or especially in labor.*

It is my custom to examine every expectant mother, unless there be some special objection, on the day of the first consultation and every four weeks thereafter until the eighth or eighth and a half month, or in other words until the thirty-second or thirty-fourth week.

It has been convincingly demonstrated that the practice of vaginal examination in patients approaching or near full term is not without danger and especially not without danger of infection. It is for this reason chiefly I teach, as well as practice, that vaginal examination should not be performed after the thirty-second or thirty-fourth week. The preferable method of study after the period named by far is through the rectal canal and it is now my custom both in teaching and practice to utilize this method alone. It is quite well worth while to remember also that in the vast majority of cases neither the vagina or rectal examination is necessary at all.

If in the latter weeks of gestation the presenting part is found low and well fixed in the pelvic cavity, it is obvious that either cavity could safely be ignored. Moreover, I am learning to rely more and more on abdominal palpation. Both in teaching and practice this recourse is being more and more advocated and utilized. *In primigravidae, near or at term, provided the head is low in the pelvis, I can see no reason whatsoever, for either vaginal or rectal examination during labor.*

Too much attention is given to the cervix, an insigni-

ificant fraction of the uterus projecting into the vagina. More study should be directed to the abdominal wall, especially inspection and palpation. The cervix plays only a passive role in labor. It is in the powerful muscular body of the womb that the essential phenomena of labor occur. The dilation of the os, the tension of the bag of waters, the movements and rotation of the descending head are all subsidiary to the work of the great organ filling the abdomen. The abdominal method of investigation should be more generally practiced. The utility of the procedure as a means of preventing morbidity and mortality, I am sure, will gradually become more fully appreciated.

It is quite safe to say that eighty-five to ninety-five per cent of maternity patients can successfully be supervised by this method alone. Since prevention is now occupying a high place in obstetric work, the not far distant future will, I believe, see greater emphasis placed on this mode of investigation.

Before laying aside this portion of my discourse on antenatal care, I should like to digress for a moment and say that in my personal work, both public and private, I rarely use the vaginal canal as a means of investigation during labor. This method, indeed, is never employed unless there be some definite indication and then only with every possible aseptic safeguard, both with respect to the preparation of the physician and the patient.

The X Ray in Pregnancy. One of the most helpful methods of investigation of the obstetrician to-day is the X ray. In the latter months of pregnancy, especially in primigravidae, if there be any question as to the type of fetal lie or any question as to the engageability of the fetal head or the relation of the fetal head to the pelvis, a complete X ray study should be made.

Quite recently I had a patient under my care, a primigravida, twenty-three years of age. The pelvic measurements seemed to indicate that the birth canal was normal and that it provided ample room for the passage of the baby. Up until the thirty-ninth week, however, the fetal head remained unengaged. On rectal examination, the vertex could be felt high up. The heart sounds were close to and on a level with the umbilicus, but rather indistinct. An X ray study was made. The vertebral column of the baby was parallel to the vertebral column of the mother and the occiput was in a posterior position. The patient went into labor and manual rotation to a more favorable position was accomplished. In maternal and fetal deformity Roentgenologic study may prove of utmost importance as a diagnostic aid.

Naturally, the X ray, as a means of recognizing plural pregnancy, is of supreme help. Only by this mode of examination can, I might say, a positive diagnosis of plural pregnancy be made.

As a recourse in the diagnosis of early pregnancy, i. e., before the sixth month, it is of doubtful utility. Rarely are fetal structures portrayed Roentgenologically prior to the twenty-fourth week. Clinical phenomena are, hence, up to this time, more reliable as diagnostic criteria than doubtful X ray findings.

I have consumed so much time in outlining the fundamental features of antenatal study that it is obviously impossible to consider that most essential phase of antenatal supervision, namely: "Instruction For Expectant Mothers". I shall briefly outline the plan I customarily advise.

Prenatal Instruction. The general care prescribed for expectant mothers in my work is along the following lines. Indeed, the brief description of antenatal hygiene herewith presented is a simple abstract of a little pamphlet which I provide for each maternity patient.

I realize there is very little, if anything, new in the text of this pamphlet. Nevertheless, it has proved of immense value to the patients coming under our care.

General Instructions for Prospective Mothers

1. *Visits.* It is essential that the prospective mother be examined regularly. A consultation card is provided for each patient. Be sure to keep your appointment. Do not fail to visit your physician regularly. Consult your doctor once every four weeks during the first seven months and once every two weeks thereafter.

2. *Antenatal Care.* Prenatal supervision, or so called antenatal care, is exceedingly important. Maintaining a high standard of living and health during pregnancy, or the antenatal period, places you in the best possible condition for delivery and favors the birth of a sound, healthy baby.

3. *Exercise.* The best form of exercise is walking in fresh air. Do not indulge in this to the point of exertion. There is no objection to motoring, provided it be not overdone and provided the car be driven carefully. In the middle months of pregnancy there is no objection to moderate dancing or swimming, but neither should be indulged in during the early or later months of pregnancy.

4. *Rest.* While moderate exercise is important, it is not to be forgotten that rest is equally important. Obtain a full night's sleep and, if possible, an additional hour of repose every afternoon.

5. *Bathing.* It is important that the skin be kept in the best possible condition. This is best accomplished by bathing. Take a warm tub bath or a warm shower daily. Be careful in getting in and out of the tub. After the seventh month, the tub bath should be taken in the sitting or preferably in the erect posture. Shower bathing is better, as well as safer.

6. *Breasts.* Before retiring, wash the nipples and surrounding tissues with tincture of green soap and warm water (two teaspoonfuls to two quarts). Follow this by gently applying a greaseless cream. This simple measure applied to the abdominal wall is also of value in preventing or minimizing cracking and scarring of the skin. Solutions such as alcohol, which harden the skin, are not to be used.

7. *Diet.* The diet should in no way be restricted. Eat the foods you are accustomed to eat. Do not exclude meat or any other article of diet, unless so instructed. A mixed diet is best, though meat should not be taken more than once daily. Fruits and green vegetables should constitute the bulk of your diet, because they are the very best foods for both mother and baby.

It is important, however, to remember that in the early months of pregnancy a diet composed largely of carbohydrates—sugar and starches—may minimize or even prevent severe or serious nausea and vomiting. While diet does not seem to have a determining influence on the size or the development of the child, yet in the latter months of pregnancy a diet composed largely of fruit and green vegetables—excluding sugar and starches—may prevent undue development or overgrowth of the baby. Do not eat much salt. Exclude salt entirely for one week or ten days, the first week or ten days of each month.

8. *Heartburn and Sick Stomach.* These conditions are sometimes annoying symptoms of pregnancy. There is nothing to be done for either in a curative sense. Both may be relieved by taking several cups of hot water, each cup containing a teaspoonful of baking soda, (bicarbonate of soda) or a tablespoonful of liquid soda mint. Eight cupfuls may be taken daily. It is impossible to take too much. Sugars and starches, as already men-

tioned, may modify or overcome these annoying symptoms.

9. *Beverages.* Water is the best possible beverage. Not less than eight glasses should be consumed daily. Milk may be taken generously, but coffee and tea in moderation only. Alcoholic beverages must be avoided.

10. *Bowels.* It is essential that the bowels be moved each day. Habit combined with a mixed diet, as outlined above, will usually prove sufficient. Constipation may be overcome by taking a tablespoonful of mineral oil morning and evening, or one ounce of milk of magnesia daily. A low warm-water enema may be used, if necessary. Strong purgatives, such as castor oil or pills containing aloes or other irritants, must be avoided. Purgatives of this type in the early months of pregnancy may provoke abortion.

11. *Clothing.* Wear clothing that is comfortable. Avoid constricting waistbands. Wear ordinary corsets so long as they are worn in comfort. Cumbersome maternity corsets are not comfortable. A simple girdle is the most satisfactory abdominal support. A great many patients seem to find more comfort without wearing corsets or any other form of support. Avoid tight garters about the legs, for they may obstruct the circulation and cause varicose veins. Support the hose from the corset or abdominal binder, though, remember, abdominal supports are not at all necessary. It is not necessary to wear a special type of shoe. Wear shoes to which you are accustomed and which provide the most comfort.

12. *Baby's Clothing.* It is not necessary to provide silk and wool clothing for the baby. Cotton clothing is preferable, and this should be used both summer and winter. Warmth is provided by enveloping the baby in blankets. Clothing of silk-and-wool texture irritates the baby's skin and is not recommended. Hence, all clothing, including socks, diapers, undershirts and gowns, should be made of cotton. The only exception to this rule is the abdominal binder. Provide six of these. They should be made of ordinary shaker flannel. They should be six inches wide and one yard long. The edges should be serrated. Two dozen diapers of medium size are necessary.

13. *Urine.* The urine must be examined regularly. Obtain a four-ounce bottle. See that it is perfectly clean. Collect a fresh "morning" specimen and bring it to the doctor's office on each visit, every fourth week during early pregnancy, every second week during the last two months of pregnancy and more frequently, if so instructed.

14. *Dentist.* See your dentist regularly. Teeth with cavities should be temporarily filled. Infected teeth should be extracted. There is no objection to either a local or a general anesthetic in having extraction performed. Avoid both by keeping the teeth in the best possible condition. Do not trust to the methods you ordinarily employ in cleansing the teeth. Have this done thoroughly by your dentist at least once each month.

15. *Books.* All mothers are interested in the observance of proper rules regarding personal care during pregnancy and in providing proper care for their babies. Books on obstetric nursing are of especial value, and the names of these will be provided on request. Holt's book on "The Care of the Baby" is one of the best, especially as regards proper feeding.

16. *Marital Relation.* Indulgence in the marital relation in the early months of pregnancy may provoke abortion. Hence, during this time the relation should be avoided. During the later months it is still more dangerous and must not be indulged in at all.

17. *Memorandum.* It will be found helpful to "jot down" or record a list of all questions which may arise in a patient's mind between visits. This memorandum should be kept and discussed with the doctor at each visit.

18. *Report Unusual Symptoms.* If at any time during your pregnancy you experience any unusual distress or any symptom which you may regard as abnormal, report it to the doctor at once. Unusual or abnormal symptoms to be reported are:

- A. Severe or obstinate nausea and vomiting.
- B. Severe and persistent headache.
- C. Any disturbance of vision.
- D. Leucorrhea or vaginal discharge.
- E. Bleeding of any type, whether mild, moderate or marked.

F. Swelling of the extremities.

G. Distended or enlarged veins.

H. In short, any symptom which does not seem to be in strict accord with normal health.

19. *Signs of Labor.* The first sign is intermittent pain, starting in the back and radiating to the abdominal wall anteriorly. The pain occurs regularly and rhythmically. It lasts from twenty to forty seconds or a little longer. These pains become progressively more frequent, severe and prolonged. During the pain the abdominal wall becomes firm and hard. After a time the pain is usually associated with a whitish mucilaginous discharge. At first this is more or less clear, but later it becomes tinged with blood. The appearance of this blood tinted fluid is called "the show" and is a positive sign that labor has begun. Sometimes the labor pains are preceded by premature rupture of the "bag of water". This is always manifested by an abrupt gush of a large quantity of watery fluid containing small, whitish particles. The presence of these whitish particles distinguishes this fluid from urine and, besides, it is free from an urinary odor.

Conclusions. In this simple paper I have devoted considerable time to the most elemental features of obstetric work. I might say the simple A, B, C's of maternity practice, but it is only by the zealous observation of the A, B, C's that one is able to avoid the serious or even fatal X, Y, Z's, a combination still all too common in routine obstetric work. It is by antenatal obstetrics alone that one is able to recognize and overcome the serious and sometimes fatal complications of pregnancy. Moreover, it is by this method of study that the accoucheur is enabled to anticipate and prevent the serious complications of labor.

It is by this method of investigation, in other words, that grave disorders, both systemic and pelvic, are recognized and that the physician is enabled thereby to adopt successful measures for their control.

Finally, let me emphasize the now generally accepted truth that *pr-natal obstetrics is by far the best type of obstetrics because it is preventive obstetrics.*

1621 Spruce Street,

The Best Indication of Fitness

The search for some simple test of physical fitness has been a fascinating field of study for the past half century; a search usually more productive, however, of negative than of positive results. It has served over and over again to impress the baffled student, with the complexity of the human organism.

After running the gamut of measurements, anthropometry has now settled down to the taking chiefly of heights and weights, to classification by types, and observation of increments of growth. As to tests of physiological function, the simpler ones have failed to be always reliable, and combinations of these have proven hardly more satisfactory save for general application. The most recent students of the subject—Hambly, Pembrey, and Warner—find the comparison of pulse rate, at rest and after exercise, the best single indication of fitness.

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H. Edwin Lewis, M.D.

The death of Dr. Lewis deprives independent medical journalism of one of its most shining lights. His management of *American Medicine* for nearly twenty years past always excited the admiration of his fellow editors.

Dr. Lewis was a medical journalist of the predestined sort. He began to edit the *Vermont Medical Monthly* almost immediately after graduation in medicine. In 1906 he became managing editor of the *International Journal of Surgery*. In 1908 he assumed the management of *American Medicine*, his most significant affiliation.

As President of the American Medical Editors' Association Dr. Lewis made a distinguished record. He was a Fellow of the American College of Surgeons and of the American Medical Association.

We know what is meant by the phrase "a Doctors' doctor." Dr. Lewis was an editors' editor.

A Therapeutic Hint?

To his deafness Edison ascribes the powers of concentration which have always characterized him, for it has protected him against distracting noises. But he also makes the interesting point that his life-long lack of "nerves" grows out of the same "defect." The nerve-strain produced by the constant irritation of noises has not been experienced by him at all.

Perhaps the temporary blotting out of sounds by artificial means would aid vastly in the therapy of "nerves."

We leave the problem with the aurists and neurologists.

The Progress of Physical Therapy

Attention is directed to the article by Dr. Victor Cox Pedersen, entitled: "Present Progress in the Recognition and Application of Physical Therapy." Although it is a Special Committee Report the matter in it is of far-reaching importance in the development of medical practice to-day. Physical Therapy is advancing in this country with very great and rapid strides. The Annual Report of the American Hospital Association in 1925 showed about twenty-four hospitals actively interested in this work and possessed of more or less distinct departments for it. In 1926 the same Association reported three hundred and one hospitals as so interested. This report, at the request of the American Hospital Association, contains a questionnaire aimed to standardize and improve all this work. In itself this questionnaire makes this Report worth reading and distributing to our hospitals. In addition, the relations of Physical Therapy with medical schools—undergraduate and post-graduate—nurses' training schools, medical journalism and professional societies are discussed in an up-to-date manner. All in all the document is strikingly complete and interesting.

The Postgraduate Situation in 1937

If, within ten years, as appears to be the belief of scientists, radio will broadcast motion pictures everywhere, then we shall, instead of traveling to Rochester to see Mayo do a gall-bladder, or to Baltimore to see Dandy operate on a hydrocephalus, sit comfortably at our own fireside and see the proceedings much better than we would in any amphitheatre. Instead of bringing Banting from Toronto or Crile from Cleveland we shall see and hear them in our own homes to far better advantage than we formerly did in some crowded and ill-ventilated hall on a bad night.

Radio and television are destined soon to play vastly important parts in medical education. And that education will be available to the rural practitioner as well as the city physician.

Medical Apologetics

Can we make inquiring patients realize that what we say about the jazz cults is inspired by knowledge and not by prejudice or worse?

The only safe, stable, conservative citizen is he whose rationalized faith in our accepted system of government has been formulated upon the basis of a knowledge of all types of governments. Only he who has scrutinized closely jazz economics and politics—the radical stuff—can defend his choice capably, like a Charles Evans Hughes or an Elihu Root. The man who is afraid of radicalism, and afraid that his neighbor will learn something about it, is an ignorant and stupid person whose "patriotism" must be founded upon subconscious (or conscious) motives not of the most creditable sort. He is the ass who shouts "Bolshevism" whenever one betrays the possession of a mind.

The soundest religious convictions must be founded upon a knowledge of religions.

Are we familiar with the jazz cults in this sense? Can we give reasons for our faith that are entitled to respect?

The Cure of Sleep

In his new book, *The Psychology of Thought*, Professor Hollingworth expresses the opinion that sleep is not only an evil but one whose cure has been neglected. "Every night in the City of New York six millions of people slow up their momentum, abandon work or play,

crawl away into a darkened corner and sink into a stupor. Millions for the unconverted heathen, State and Federal departments for the suppression of alcohol; but no interest on the part of any of our guardians in this life-long nightly stupor of mankind."

Sleep is a great natural fact which stands in the way of a complete realization of the fanatical industrialist's dream of a larger mortgage on the worker's time. It is not an evil, but a protection against a greater social exploitation.

Undue curtailment of sleep is a large factor in nervous breakdowns of one sort or another. People do not "crawl away into darkened corners" early enough in the evening, and then the alarm clock functions as a sniper in the morning, killing off precious hours of sleep and depleting reserve energy, the immediate ill effects being masked by large doses of coffee and tea.

Were it not for sleep man's inhumanity to man would go to far greater lengths.

We like Shakespeare's sane feeling about sleep:

Methought I heard a voice cry, "Sleep no more!
Macbeth does murder sleep,"—the innocent sleep,
Sleep that knits up the ravel'd sleeve of care,
The death of each day's life, sore labour's bath,
Balm of hurt minds, great nature's second course,
Chief nourisher in life's feast.

There are still Macbeths, who would murder sleep in order to realize ambitions that are against nature. Fortunately, nature is no less impregnable to-day than in the time of Shakespeare's great tragedy, and will always so remain.

A Tiresome Calumny

A favorite calumny of writers and speakers (usually lay officials or promoters of *quasi-medical* or uplift organizations) is the portrayal of the practitioner of the later decades of the nineteenth century as a man whose equipment consisted of a stethoscope and a thermometer. Nothing is ever said about his fingers, or eyes, or even about his brains. We should not be afraid to wager that an Austin Flint would have a considerable advantage, if turned loose to-day in a sick room with a commission to make a diagnosis, over most of our highly accomplished clinicians. So would James Mackenzie. Both of these men would use equipment that the aforesaid officials and promoters seem disposed to believe have been supplanted by strictly modern devices; that is to say they would use their fingers, their eyes, their ears, their noses and their brains. There will never be any new equipment that will retire these older resources from the field of diagnosis. But the imbeciles who criticize the practitioner of an older day never concede anything but stethoscopes and thermometers. Some of these gentry are merely stupid; others are open to graver charges. All of the pests should be suppressed.

The Campaign for Health Education

It would seem that the chief value—and it is a great value—of the public health demonstrations staged by such organizations as the Milbank, Rockefeller and Commonwealth funds consists in the example to the country at large afforded by the striking results achieved in selected communities, such as the Bellevue-Yorkville section in New York, and the Syracuse and Cattaraugus districts. Such finds might be something to fear if they were more numerous and powerful than at present, but there is no danger of anything like that ever happening. They can serve nothing but useful purposes, and really unique ones, for the accredited health authorities cannot alone stage such demonstrations but derive the greatest educational assistance from the efforts of the unofficial

groups aforesaid. Even though it be the avowed object of these funds "to dot the cities and country districts with health centres as they are now dotted with schools," we may feel reassured by the active participation in these efforts of the United States Public Health Service. Modern knowledge of the principles governing individual and community health is being effectively brought to rural as well as urban sections of the country through such concerted efforts. We have here merely an illustration of where private enterprise and initiative enters in to set an example and a pace that will better enable the regular health authorities to secure that to which they are entitled and will some day have. What better argument could there be for increased public funds than such conclusive demonstrations as have already been furnished by the privately financed projects? It cannot be argued that public opinion is as yet sufficiently informed and convinced as to the real possibilities and needs of public health measures. It is not paternalistic but progressive ends that are being served, panic-promoters to the contrary notwithstanding. The final outcome will be, not social disaster, but from fifteen to twenty years added to the life span.

Miscellany

The Horde of Regulations

At a meeting of Federal Prohibition agents in Washington on July 13, protests were filed against the ever-increasing list of "regulations" prescribed under the authority of the Volstead act. On behalf of the Association of Retail Druggists, Mr. E. C. Brockmeyer argued that if the American people can trust the proprietors of drug stores with their health and lives in compounding and dispensing medicines, Prohibition officers ought to trust them in dispensing medicinal spirits. On behalf of the Industrial Alcohol Committee of the National Paint, Oil and Varnish Association, Mr. H. S. Chatfield declared that his organization would "fight to the last ditch" against the proposed regulations making the holders of alcohol-selling permits responsible for any unlawful acts of any of their agents. On behalf of the Association Against Impure Liquor, Mr. Charles Capehart said:

The time has certainly arrived when reputable medical men, as well as honest druggists and other "lawful business men," should not be hampered by silly, useless, unenforceable restrictions for which no justification can be found either in the Constitution or the law.

Such protests as these testify to the growing resentment against the high-handed and inquisitorial character of enforcement efforts as the logic of Prohibition drives its administrators on from one extreme position to another. Millions of gallons of spirits are released each year, and must be released, for industrial purposes and medicinal purposes. How is the Government to cope with the gigantic task of tracing every gallon of this flood of spirits from its producer to its ultimate consumer, making sure that not one drop of it is illegally diverted, unless the Government sets up a vast and far-reaching tyranny of regulations? Inexorably the logic of Prohibition compels the Government to prescribe high-handed rules, to set up an espionage system and to treat whole classes of citizens—doctors, druggists and manufacturers—as if they were guilty of some evil purpose until proven innocent.

(Concluded on page 218)

When the Medical Profession of New York Paid Homage to "The Autocrat of the Breakfast Table"*

America has produced many great literary men and many great medical men, but it may be doubted if in any country there has ever lived one who has gained such honor in both fields as Oliver Wendell Holmes.

From the time he became associated with James Russell Lowell in building the "Atlantic Monthly," his rise to fame in the world of letters was constant, rapid and permanent. We all know *The Autocrat of the Breakfast Table* and *The Professor* among his prose works, while *The Chambered Nautilus* has been pronounced the most perfect poem in the English language.

His *Old Ironsides* overnight rescued the historic frigate "Constitution" from a watery grave at a cabinet officer's unsentimental hands, and has been fervidly recited by millions of school-children for almost a century. These are but a few of the gems that have come to us from his facile pen.

However, the general public is not aware that Holmes was also a physician, and a very famous one, if for no other reason than that his essay of 1843, *The Contagiousness of Puerperal Fever*, was destined to save the lives of countless mothers and babies.¹

Long before bacteria were discovered, he championed this worthy cause with relentless vigor and persistence, throwing all his great literary talent into a battle in which his opposition was ignorance, superstition and a fierce abusiveness by the staid obstetrical authorities of that day.²

As Professor of Anatomy at Dartmouth and later at Harvard, Holmes won the reputation of being "the best teacher of anatomy of his time in this country." Always the scholar, precise, patient, courteous, full of sparkling wit and philosophy, sympathetic though satiric, quick as a flash with apt simile, he mixed imagination with the charm of his deep historical knowledge, accuracy of fact and elegance of diction, breathing life into the skeletons of the dissecting room, and with his personal magnetism compelling the interested attention of the most backward medical student.

How he managed for over forty years to maintain this chair so successfully, and still find time for his increasing literary pursuits, in spite of a racking asthma and the incessant demands upon him as an orator, was always a mystery of his friends.

* * *

Early in March, 1883, at a dinner party of physicians in the University Club, New York City, one of the number alluded to the fact that Professor Holmes had just given up his chair at the Medical Department of Harvard.

The question came up, whether, at this time, it would not be a graceful and appropriate expression of the sentiment of the medical profession of the city of New York to invite Dr. Holmes to a public dinner, so that all classes of the profession, regardless of school or affiliation, could join to make such a demonstration a happy as well as a useful one.

The suggestion was received by all present with great

enthusiasm, and an organization was immediately effected as a nucleus for the formation of a general committee of arrangement. Dr. T. Gaillard Thomas was elected Chairman, and the names of the various committeemen read like selected pages from some gilt-edged special edition of Who's Who:

Fordyce Barker, William T. Bull, Clement Cleveland, John G. Curtis, John C. Dalton, Francis Delafield, William H. Draper, Frank P. Foster, Allan McLane Hamilton, Edward L. Keyes, Francis P. Kinne, Alfred L. Loomis, Charles McBurney, Henry G. Piffard, William M. Polk, Beverley Robinson, Daniel B. St. John Roosa, A. Alexander Smith and Andrew H. Smith, Lewis A. Stimson, Robert F. Weir. . . .

Among the invited guests were such distinguished names as James Anderson, Alonzo Clark, Austin Flint, Willard Parker, Alfred C. Post, William H. Van Buren. . . .

Some famous guests invited from other cities were Henry J. Bigelow, John S. Billings, Samuel D. Gross, S. Weir Mitchell, William Pepper, John V. Shoemaker. . . .

Bishop T. M. Clark was to represent the clergy, the Honorable William M. Evarts the bar, George William Curtis literature, and Whitelaw Reid the press. Charles A. Dana of the *Sun* and Horace White of the *Post* were also invited.

Other subscribers and guests whose names even now are of more than local or passing interest included: Robert Abbe, Cornelius R. Agnew, Morris Asch, Charles Stedman Bull, Francke H. Bosworth, Wesley M. Carpenter, P. F. Chambers, Charles L. Dana, D. Bryson Delevan, Richard H. Derby, R. Ogden Doremus, Louis Elsberg, all three Emmets, Virgil P. Gibney, both Griswolds, William A. Hammond, Horace T. Hanks, Everett Herrick, Abraham Jacobi, Edward G. Janeway, William H. Katzenbach, Hermann Knapp, Edward W. Lambert, William T. Lusk, John W. McLane, Thomas M. Markoe, Basil Norris, Henry D. Noyes, Fessenden N. Otis, E. L. Partridge, George L. Peabody, both Porters, T. Mitchell Prudden, Henry B. Sands, Lewis A. Sayre, Francis LeRoy Satterlee, J. Marion Sims, Samuel Swift, S. Oakley Vanderpoel, Henry F. Walker, both Wieners, W. Gill Wylie. . . . What names!

Most of these men have since passed on, but, in their time, they represented the cream of the metropolitan profession, and their names will recall to many a reader of these pages memories of fine gentlemen, able teachers, respected consultants, helpful friends.

Some of them were men of great wealth to whom the practice of medicine was an avocation rather than a means of livelihood, and not a few were men of such broad gauge that they would have risen to the top in almost any field they might have entered.

* * *

The dinner took place Thursday, April 12th, 1883, at Delmonico's, in those days located at Fifth Avenue and 14th Street, northeast corner. After a pleasant hour or two spent in the adjoining reception room with the guest of honor, the doors of the dining room were opened and 216 doctors and 15 distinguished laymen sat down to a memorable dinner.

The decorations were not profuse, but were in good taste. Three banks of flowers stood upon the table of

* Printed originally, with many portraits and other illustrations, as a special supplement to Johnson and Johnson's *NOTES AND ABSTRACTS*, Vol. XI, No. 3, March, 1927. Original copies may be obtained from Johnson & Johnson, New Brunswick, New Jersey.

¹ *A Brief Recent History of Puerperal Fever, NOTES AND ABSTRACTS*, 11:36.

² We are also indebted to Holmes for coining the terms *anesthesia* and *anæsthetic*.

honor. Bunches of cut flowers, brightly colored and fragrant, placed here and there, decorated the other five long tables, and these were augmented by many potted tropical plants.

The menu was printed in book form, bound heavily in plush of different colors, one cover being ornamented with a gilt design consisting of a scalpel and pen crossing each other, surrounded by a wreath.

Stubbs' orchestra was stationed in the gallery and rendered many acceptably popular airs while the bustle of conversation, the tinkling of glasses and the rattling of chinaware among the banqueting host ascended like a harmonious chorus.

As to the dinner, space does not permit of details, but it will suffice to say that it was one of Delmonico's best. That genial host was in personal charge and spared no effort or expense to surpass himself.

While the coffee was being poured, special messengers went hurriedly through the room distributing to each guest what purported to be a telegram from Boston dated April 1st, 1883, with a pen and ink caricature on one side and a poem of acceptance on the other, both done by the hand of Holmes himself. Then came the intellectual part of the feast.

For thirty-two successive years, the versatile Professor had written annual poems for his class of 1829, so that he found it not at all difficult to respond to the assembled doctors with a fitting poem of over two thousand words. Although hastily composed, it was in perfect meter and rhyme, suited to the occasion, full of apt puns and humorous thrusts.

In the lines

When the stern Landlord whom we all obey
Has carved from life its seventh great slice away,
Is the poor fragment left in blank collapse
A pauper remnant of unvalued scraps?

we see the philosopher pausing in serious mood to glean a religious analogy from his earlier witty verses comparing the carving of the banquet goose to the dissector's skill on the cadaver.

It was to be expected that the toasts of the occasion would all be of an exceptional literary quality. That of George William Curtis representing the tribute of literature was particularly eloquent, bringing forth considerable applause at the point:

"But mark his own impartiality: While he professes medicine he practices literature; while he cools the fever that wastes the body he kindles the fires that enoble the soul; and, soothing mortal pain with cunning anodyne, he distils an immortal joy from the divine nepenthe of song."

Whitelaw Reid's toast for the press was also a masterpiece. In semi-serious vein, he laid editorial claim to Holmes because of his ready ability, on public occasions, to crystallize the prevailing sentiment, which after all is the province of the master editor.

The eloquent remarks of the Chairman, T. Gaillard Thomas, were spontaneously acclaimed: "By that warmth of nature which has brought you into sunny contact with the whole world; by that genial, kindly sympathy which has endeared you to all who know you; by that subtle genius which has felicitously combined within you the attributes of philosopher, of poet and physician; by that nobility of spirit, that loftiness of soul, which are so beautifully illustrated in your daily life, we here claim you, joyously and proudly hail you, as our colleague, our friend, and our brother. . . . We pledge you, that the kindly regards which we now offer you, shall endure from the pleasant hour which we here pass together, to that far-distant one when you shall leave us to oc-

cupy your pre-destined niche in the Walhalla of fame, enveloped, as in a garment, by an atmosphere of glory which will gild the sepulchre and embalm the name, that it may live forever among those immortal ones which were not born to die."

After the other two toasts had been offered, William T. Bull, unafflicted then by the cancer of the neck that was destined to destroy his useful life, and possessed of a beautiful baritone voice, led the singing of "Auld lang syne."

The Horde of Regulations (Concluded from page 216)

Meantime, back of the Government, whipping it to new efforts when its interest lags, stands the Anti-Saloon League—demanding that there be no "let-down," no show of intelligent good faith in the administration of the law, no policy on the Government's part save one of constant mistrust and official bullying. When, two months ago, the doctors of the country appealed through the American Medical Association for a more reasonable interpretation of the medicinal sections of the Volstead act, Mr. Wayne B. Wheeler promptly warned the Administration that any "let-down" would only give more doctors an opportunity "to make a living as prescription bartenders instead of physicians."

It is small wonder that there are more and more protests on the part of reputable people who dislike being treated as suspected criminals.

The World.

Not Finished

The conclusion which Dr. Tilney has reached as a result of his study of the brains of apes and of men, beginning with prehistoric types, is that the cerebrum of man today is not a "finished product." It is still in the making. We should have little reason to search for fossil bones from Nebraska to Mongolia if it were not that they may give us a hint of the destiny of man. It does not so much matter who our ancestors were if they cannot tell us whether we have come to the end or are merely on the way. Dr. Conklin of Princeton University once said that for ten thousand years there had been no evolution in the human body, and that there has been no progress in the intellectual capacity of man in the last two or three thousand years.

Now this scientist, surrounded like the gravedigger in "Hamlet" with skulls and throwing up the skull of the Neanderthal man, whose prognathic jaw "jowls it to the ground as it were Cain's that did the first murder," remarks that it has more than antiquarian interest, for it is a prophecy of continued evolution.

The prehistoric brain has "a definite and living bearing upon the future progress of the race," he says. When the cerebrum of historic man is put beside the fossil mate of the Dawn Man, who himself, as his brain attests, had come a long distance from the parting of the ways at which the human and the anthropoid stocks separated, there is recorded a growth of brain which attends step by step human progress and gives hope if not definite promise of continuance. It is inconceivable that man should be lifted to this height, unless he is on the way to greater intellectual heights and to a state of existence that now lies but in his hopes.

Dr. Tilney's observation is that the brain, in one respect, lends support to Professor Osborn's view which gives the race a line of ancestors entirely human and quite apart from the anthropoid apes. The "hominidae" family are quite distinct from the "simidae"—whatever the relationship of their ancestors may have been.

The human brain from its most humble beginning has manifested advances to specialization of those areas associated with the production of spoken language, with the regulation of highly skilled acts, and most probably at least with unidexterity.

The outstanding attribute of man has been his "power to improve." And "humanity" has grown with brain expansion. The features of the *pithecanthropus* correspond with those of the *homo sapiens* in nearly all details. Its "only essential inferiority is its relative smallness of brain," though large enough for admission to

the human family. In the evolution from the Javan, the Piltdown, the Rhodesian, the Neanderthal and the Predmost man to the modern man, it appears far more probable that the brain of the existent man "represents but an intermediate stage in the ultimate development of the master organ of life." This sort of evolutionary doctrine should engage the interest of Fundamentalist and Modernist alike. Whence we have come is of concern only as it gives us some information where we are going. We have not come to the end of human evolution. —*New York Times*.

Some Facts Concerning Diet*

LAWRENCE IRWELL, ESQ.

Buffalo, N. Y.

The popular belief that some essential difference exists between so-called red meat, or beef, and so-called white meat, or breast of chicken and turkey, has no basis apart from the fact that breast of chicken and turkey is as a rule very lean, while beef, although called lean, has considerable fat intermingled with it. Beef which contains very little fat exists only when the animals are of very poor quality and such animals are usually tough. Between the caloric value of beef and white meat, there is unquestionably a marked difference, otherwise there is little dietetic distinction, the redness, due to hematin, the coloring matter of the blood, being unimportant. Leg of lamb is not classed as red and is usually lean, so that its caloric value is likely to be lower than that of beef. The widespread belief that beef on account of its color differs essentially from other meats, is a fallacy.

The instructions given to some nephritic patients and sufferers from arteriosclerosis that they may eat chicken every day in the week, but must not eat any beef because it is red, has no scientific basis.

Species plays an important part in the digestibility of animal foods, the species nearest to man being most thoroughly digested. Fish, therefore, is not by any means as thoroughly digested as beef or lamb. There is little doubt that the flesh of an anthropoid ape would be much more thoroughly digested than any flesh food in common use. It is hardly necessary to say that very few people have had the opportunity of eating the flesh of any of the apes referred to.

Soups made from meat are contra-indicated where nephritic patients are concerned. This condition is not connected with protein because protein cannot be boiled out of meat and bones from which meat soups are made. It is due to the presence of purin ($C_5H_4N_4$) in some form, and purin is a renal irritant. The nearest approach to protein to be found in meat soups is gelatine, which is, as is well known, a protein sparing. Purin in a slightly different form is present in soups made from navy beans and peas, and for this reason nephritis are much better without soups made from these vegetables.

Some physicians instruct their patients who are suffering from disordered kidneys carefully to abstain from meat and from eggs, permitting them to eat small quantities of fish, without informing them that salmon approaches beef very closely in protein content. This fish is, of course, decidedly fat, consequently its caloric value is high. It is not with most persons as easily digested as fish which are less fat. Fresh codfish is easily digested because it is not fat, but it is a somewhat tasteless food.

Halibut is almost as free from fat as cod and has more flavor.

Oatmeal in the form of cereal is a common breakfast food. One objection to it is the tendency which it has to produce intestinal fermentation. This peculiarity does not appear to extend to dry oatmeal in the form of oatmeal crackers. If, therefore, anyone is exceptionally fond of oats in some form, a wise plan may be to substitute oatmeal crackers for boiled oatmeal. However, nephritis are much better without oatmeal in any form because it contains from 13% to 15% of protein, and these patients can obtain the small quantity of protein which they require without using oats in any form. For these persons a desirable cereal is rice which can now be procured in the form of ground rice and made into an agreeable breakfast food, almost entirely carbohydrate and easy to digest. This article has a trade name but mention of it might lead the reader to suppose that the writer wished to advertise it.

Cocoa and chocolate consist of sugar, fat or oil, and theobromine ($C_7H_8N_4O_2$), the last named having some stimulating effect. As chocolate and cocoa are renal irritants, nephritis ought not to ingest them. In the writer's opinion, children under 15 years of age should refrain from eating chocolate or drinking it or drinking cocoa in consequence of the increased activity of the kidneys produced by their use either at meals or between meals. The feeling of fullness after eating chocolate, the impression that one has eaten a meal, is caused by the prolonged stay of the chocolate in the stomach.

Ethyl-Alcohol (C_2H_5OH) as a food or a poison has been a common subject of discussion for about a century. Nevertheless until the year 1900 a great part of our information on the subject was traditional rather than scientific. At that time a thorough and practical investigation of alcohol was made by some of the most eminent experts in the world. The results of this exhaustive examination of the subject may be found in two volumes entitled "Physiological Aspects of the Liquor Problem," edited by Dr. John S. Billings and published by Houghton, Mifflin & Co in 1903.

There is no doubt that in quite small quantity, perhaps the amount contained in a pint and a half of 4% beer, it is oxidized and produces energy. In larger quantity, it is excreted as alcohol, but there is the remote possibility that its temporary sojourn in the human body is not injurious. Upon the other hand, there is no evidence to indicate that this temporary sojourn is beneficial.

In cases of great exhaustion, alcohol may be very useful, because, being a product of fermentation, it is

* From a layman's standpoint.

predigested and reaches the circulation very quickly. As to whether or not it is the best alleviative when the patient is greatly exhausted, is still a matter of dispute. The Lord Mayor of Cork, Ireland, went on a hunger strike and, when he was near death, alcohol in the form of whiskey or brandy was administered to him. He died, and the physicians in England who are opposed to the use of alcohol in any circumstances, contended that the alcohol caused his death and that had he been given fruit juices he would have lived. However, the consensus of opinion in this country, at any rate, if not in Great Britain, is that alcohol is valuable where there is great exhaustion.

A considerable number of physicians continue to refer to alcohol as a stimulant and to prescribe it for stimulating purposes although there is abundant evidence that it cannot be correctly described as a stimulant. It is true that the ingestion of whiskey, brandy or gin produces an increased heart beat, but this is due not to any action which the alcohol has upon the heart, but to local irritation.

Some physicians assert that whiskey or brandy is absolutely necessary in cases of lobar pneumonia, but there is evidence to rebut this contention. For example, on Hampstead Road, London, England, there is a small hospital with about 135 beds known as London Temperance Hospital, at which alcohol is not used in any form, although the institution has existed, to the knowledge of the writer, for over 50 years. The record for any disease which is treated at this hospital, including pneumonia, is quite as good, if not better, than that of any other hospital in London. Ethyl-alcohol may be a very useful, indeed, a valuable medicine, but only too frequently physicians do not give careful instruction as to the quantity which should be given to the patient, and very often they are in ignorance of the exact amount of alcohol which the liquor prescribed by them contains. The more scientific plan might be to prescribe a specified quantity of Ethyl-alcohol to be taken in a designated amount of water. It must be admitted, of course, that this combination would not have an agreeable taste and that the patient might refuse to drink it, a remark which applies to many other medicines. In reference to alcohol as a beverage a great deal more could be said than can be printed in this article. A statement concerning the statistical aspect of the matter will not be out of place. There is not in the United States so far as available information is at hand, any life insurance company which for a long period of years has divided its policy holders into total abstainers and moderate drinkers. In England, United Kingdom Temperance and General Provident Institution, a comparatively small company, has done this for about 60 years and the ratio of actual to expected deaths among total abstainers is about 69%, and among moderate drinkers about 92%. However, the H. M. (healthy males) table used by English companies is not identical with our American experience table used by American companies which provides for a higher death rate up to age 35 than actually occurs. The significance of this statement is that if an American Life Insurance Company, in the State of New York, for example, divided its policy holders into total abstainers and moderate drinkers, the figures might differ considerably from those already quoted. Nevertheless, there appears to be some American evidence tending to show that total abstainers are much better life insurance risks than moderate drinkers. Many of the facts have been admirably stated in a booklet by Dr. Oscar H. Rogers, Chief Medical Director, New York Life Insurance Company. But the work of Raymond Pearl tells a different story.

The most important foods of man are undoubtedly air

and water, but the therapeutic importance of one of the constituents of the atmosphere appears to have been neglected until recently. True, when a patient has been very near to death, oxygen has been given by means of a glass tube which sometimes breaks in the mouth. Dr. John H. Evans of this city, Buffalo, N. Y., President of The Associated Anesthetists of the United States, has perfected a process for administering oxygen to pneumonia patients without the use of a glass tube. He substitutes a hard rubber inhaler, and, of course, regulates the percentage of oxygen which the patient breathes according to circumstances. The result of giving this food, oxygen, to pneumonia patients, has been remarkable, and lives have undoubtedly been saved by it. It is almost unnecessary to add that the administration of oxygen in pneumonia cases ought not to be delayed until the sufferer is at death's door. The administration of oxygen requires knowledge as to the percentage that is to be given as well as the use of suitable apparatus.

Contemporary Progress

Injection Treatment of Varicose Veins

Last year we commented¹ on Dr. V. Meisen's method of treating varicose veins by injecting a 20-30 per cent. sclerosing solution of sodium salicylate. Dr. Meisen has now published an account of the extension of his experiments.² His results have continued uniformly good, and he has evolved a modification of technique which he has succeeded in avoiding severe complications in all but 1-6 per cent of his patients, even in the presence of ulcers and eczema. He lays stress on the importance of a most painstaking examination. He objects to the use of the elastic band, which he says leads to stasis, and makes the patient stand on a high chair and lift each leg alternately while he observes the state of the veins under working conditions. It is important to look carefully for varices hidden under fat, ulcers, and other skin lesions. He has replaced his original solution by one composed of equal parts 25 per cent sodium salicylate and 10 per cent common salt, which is practically painless when injected. The maximum dose is 10 c.c.m. The point of the cannula must not be too sharp or the vein may be transfixed. It is inserted while the patient is standing up, and when blood flows from it it is rotated once or twice to make sure that it has not caught in the opposite wall. The patient then lies down, and the surgeon places the leg on a special stand. When the varices are empty, which takes a few minutes, the injection is commenced; this should be performed very slowly and stopped if there is any resistance to the flow or if the patient feels pain. For injections in the neighborhood of the malleoli, which are always painful, 1/2 per cent of novocaine (without adrenalin) is given direct into the varix. After injection the part is lightly massaged. Treatment is repeated every other day, and if both legs are affected one is done every day.

The patients Dr. Meisen has treated include 55 with phlebitis, 135 with varicose ulcers of varying duration, and one with venous angioma. Forty patients had chronic eczema as a complication. Old age offers no counterindication, and the oldest patient treated was 81. All the ulcers were healed at the time of discharge except in two cases; some, however, required a further short course. In his previous communication Dr. Meisen already noted the curious fact that 25 per cent of his patients had flat feet; he now raises his estimate of the coincidence of flat-foot and varix to 50 per cent. Another complication is periostitis of the tibia, which often proves very stubborn. Only 3 per cent of his cases had undergone previous operation, and most of these had had recurrences after the Trendelenburg technique; several had had repeated surgical treatment. The author's opinion is that operation is useless for this complaint. He has observed that varices appear at very definite points—viz., on the anastomoses between the deep and superficial veins. If, as has been believed, they were simply due to weakness of the vessel walls, they would appear haphazard, which actually they do not. This is one reason for the disappointing results of operation, for it is impossible to remove these anastomoses. The operation cannot be radical enough. The 1-3 per cent of complicated cases included deep sloughs leading to gangrene of muscle, chemical phlebitis, infarction, and hemorrhage. Infarcts are sometimes the result of using too large doses, and occurred in one or two cases for whom an attempt was made to hasten the treatment at their request. 25 c.c.m. is regarded as an infarct-producing dose, and 10 c.c.m. is now Dr. Meisen's